

The Alberta Journal of Educational Research

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THE COMMITTEE ON EDUCATIONAL RESEARCH

*Faculty of Education
University of Alberta*

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Editorial

THEY ARE GIVING US THE TOOLS

DEAN H. T. COUTTS

May 18 and 22 were important days for the Faculty of Education. On May 18 the W. K. Kellogg foundation announced a grant of \$127,540 to assist the University of Alberta in expanding its graduate program in educational administration and supervision. Four days later the Carnegie Corporation announced a grant of \$50,000 in support of the University's program of educational research. Together these announcements give the added stimulus that should result in important contributions to Canadian education.

The Kellogg grant, to be paid over a five-year period, will bring to the University each year some ten to fifteen students of educational administration and supervision. They will be enrolled in the School of Graduate Studies, most of them as candidates for the Ph.D. degree. These students will come from various provinces of Canada. Since most of them will be mature men and women already employed as school administrators and already carrying heavy personal responsibilities, the grant provides for generous financial assistance. Further assistance will be given by their employers and by scholarships to be solicited by the Canadian Education Association from interested individuals and institutions.

The program in administration and supervision will actually be an extension of that already offered in the Faculty of Education at the master's level. Students will be able to pursue it in four stages leading to a Diploma in Educational Administration and Supervision, a Master of Education degree, a Specialist Diploma, and a Doctor of Philosophy degree. The term 'administration' is to be interpreted very broadly—including studies in political science, law, business administration and supervision as such. It will include also field studies and research. One of the outcomes of the program will be the extension of research studies related to educational administration and supervision. A body of consolidated research in this area is very much needed and long overdue.

The Carnegie grant, also to be paid over a five-year period, is restricted to the research needs of the Faculty of Education. Besides providing assistance to two or three fellows, the grant will permit the extension of library facilities and publications concerned directly with research. Educational studies made possible by this grant will include research related to elementary and secondary schools and to universities. Any significant problem in public or private

education is of interest to the Faculty Committee on Educational Research. The Carnegie grant makes possible the extension of research into educational areas not previously investigated.

The new grants offer a challenge for the University of Alberta to become a leader in the preparation of school administrators and research workers in education. More important still, they should help us find more accurate solutions to some of the persistent and vexing problems in education.

With these grants the Faculty of Education will expand its graduate studies and research programs over the next five years. To maintain them at the expanded level means that there will be need for more rather than less support from the University and from those other institutions and individuals who have at heart the welfare of boys and girls.

A CHALLENGE TO THE FACULTY OF EDUCATION

G. M. DUNLOP

*Faculty of Education
University of Alberta*

Introduction

1956 will be memorable in the history of Alberta education as the year in which two awards were made to the University of Alberta by American foundations. The Kellogg grant provides funds for the development of a graduate program in educational administration and supervision, and is the outgrowth of the highly successful CEA-Kellogg Short Courses, in which the Faculty of Education played so large a part. The Carnegie grant in aid of educational research, too, constitutes a recognition of the existing research organization and its healthy record of achievement.

1. The University of Alberta—Kellogg Foundation Graduate Program in Administration and Supervision

The Submission and Grant

The graduate program in educational administration and supervision in the University of Alberta is an outgrowth of the CEA-Kellogg Five Year Project in Educational Leadership, which brought to our campus superintendents and inspectors of schools from every province in Canada. The staff of the Faculty became increasingly involved in the operation of the short courses, and had an unequalled opportunity to develop an insight into Canadian educational problems and to acquire a wide acquaintance with educationalists from all parts of the dominion. Under these circumstances the University was stimulated to think in terms of extension of its graduate program in administration and supervision in the hope that it might become a Canadian center for advanced studies in this area. Under the leadership of President Andrew Stewart a submission was developed for presentation to the W. K. Kellogg Foundation. Helpful advice was received from Dr. Althouse and Dr. Swift, presidents of the CEA, from Freeman Stewart, secretary of the CEA, and Dr. Flower, Director of the first Five Year project. On May 18th, the Kellogg Foundation announced the award of \$127,540 to the University for the expansion of the graduate program in administration and supervision.

Organization and Program

Planning of the graduate program has been based on three important principles. First, the program must be national rather

than provincial in its program, staffing and students. Second, it must involve all educational organizations: Departments of Education, school boards, school systems and the community. Finally, it must be practical, experimental, based on field experience as well as on theoretical and academic studies.

A new division of educational administration and supervision must be created. Its director must be a man with excellent academic qualifications and wide administrative experience. He must become acquainted with Canadian education and educationalists throughout the ten provinces in order to achieve organization, planning and liaison at the national level. It is expected that he will be assisted by a new appointment from the Old Country, the best available British authority on administration and supervision. American experts will be brought in each semester to present the American viewpoint. It is to be remembered that these new appointments are additions to the present competent staff. Finally, leaders in Canadian education will be drawn upon each year for short courses of lectures, workshops and seminars.

The program is a combination of the old and the new. One year of academic study after the bachelor's degree will qualify a candidate for a Diploma in Educational Administration and Supervision. Completion of six courses and a thesis will win the master's degree. The Specialist's diploma will be earned by an additional year of study. Finally, the Ph.D. degree will be awarded under the conditions described in the new university calendar.

Since candidates are expected to possess excellent qualifications and a record of successful professional experience they will tend to be more mature than ordinary graduate students. For this reason generous financial assistance must be provided. In addition, the program must involve workshop seminars, field experience, internship and research with a lessened emphasis on course requirements and lectures, especially in the post-master's program.

The achievement of a national approach to the problems of administration and supervision is essential to the success of the project. This will be insured in a variety of ways. First, the congregation on one campus of candidates from the ten provinces will encourage wide exchange of ideas concerning current administration practices, a process of cross-fertilization of ideas which cannot fail to be valuable. Next, there is the broadening of staff background through new appointments and wide use of prominent educationalists from across Canada. Inevitably the research arising from individual and group projects and dissertations will be Canada-wide in scope. Finally, perhaps the greatest guarantee of a national orientation

comes from the continued close association with the CEA executive and its officers.

How the Grant Will be Used

The funds available for the development of a graduate school in administration and supervision are not limited to the Kellogg grant. The University of Alberta is prepared to increase its budget to reinforce the project. It is hoped that the employers of candidates will assist in various ways in making postgraduate study possible. From these sources funds will become available over a five-year period to provide for the following:

1. The equivalent of three new staff members.
2. Lectures and short courses given by leaders in Canadian education.
3. Office assistance and equipment.
4. A strengthened library in administration and supervision.
5. Staff training, liaison and travel.
6. Adequate financial assistance in the form of scholarships and honoraria for teaching and research assistants to permit ten to fifteen scholars to finance advanced studies in Alberta.

Albertans will wonder about their eligibility for scholarships and honoraria. Under present plans they are as eligible for grants as candidates from other provinces. The awards will be made in terms of record of scholarships and professional attainment. There is one limiting factor. To avoid the danger of academic "inbreeding" the Council of the School of Graduate Studies has ruled that to become eligible for candidacy for the Ph.D. degree a student must have taken one degree in another university of approved standing.

What is the expected pattern of development during the next five years? It is anticipated that with a record of achievement resulting in increasing prestige in administration and supervision, there will be a steady growth in the number of candidates seeking advanced studies. Many will not be able to secure the financial assistance made possible by the Kellogg grant. New scholarships must be developed. At the end of five years it is hoped that the graduate school will continue to expand without foundation assistance.

2. The University of Alberta—Carnegie Corporation Five Year Project in Educational Research

The Carnegie grant will be paid to the University of Alberta in five annual instalments to be used in the development of educational research. Under the terms of the award, \$50,000 will be paid to the University over the five-year period to be used in accordance with

a budget which is part of the agreement with the Carnegie Corporation.

The Alberta Advisory Committee on Educational Research is the body entrusted with the financing of the research program. It approves the annual budget and advises on research needs. This committee will include the annual Carnegie grant in its current revenue and will authorize disbursements in terms of the budget agreement and the requirements of the ongoing program.

The formal submission to the Carnegie Corporation describes the disposition of funds from foundations and local sources for the five years of the program. The additional funds permit a well balanced research program, although still limited in extent. Each year sufficient funds will be devoted to research to permit an appreciable enlargement of the program. Provision is made for a secretary and later for a manager of the research organization. Funds are provided for an increased program of publications. A library is to be organized and research equipment purchased. Research fellowships are available for candidates for the M.Ed. and Ph.D. degrees.

The Increased Research Program

The research program must meet the needs of education in Alberta. There must be a continuing alertness to problems. Teachers, A.T.A. locals, school board members, members of the Home and School Associations, superintendents, high school inspectors, officials of the Department and Faculty members must strive to identify problems and transmit them to the research organization. A wise selection of problems for immediate study must be made. Research workers must be trained. Above all, the organization must be created for the wider involvement of educationalists interested in embarking on study of specific problems. In effect this is done through contact with the Faculty Committee on Educational Research. To facilitate such contacts the Department, the A.T.A., the superintendents and high school inspectors now have representation on the committee, and may assist in the initiation of new projects. Eventually it is hoped that small research committees will come into existence in other cities and towns for the purpose of identifying problems, securing endorsement and support of the Faculty Committee, and, with such guidance as may be necessary, conducting the needed research. The research movement should be province-wide, not centered in the University. The research organization exists as much for the encouragement as for the conducting of research.

Another encouraging feature of the situation is the fact that with Kellogg and Carnegie aid as many as seventeen M.Ed. and

Ph.D. candidates from all the provinces of Canada will be drawn to our campus for intramural advanced studies. The research necessary for dissertations in qualification for advanced degrees will provide trained research workers with wide opportunities to work on urgent provincial or national problems.

How much research can be attempted at one time? Even with Carnegie aid the amount must be limited. However, each new project is usually supported by supplementary grants. In one case an urban school board may make a special contribution. Sometimes divisional boards may make substantial donations. In other cases grants come from teachers' locals, community organizations, service clubs, or industry. Sometimes the Department of Education will provide the necessary testing instruments, which is the equivalent of a large contribution. Every group sponsoring a project should explore the possibilities of special donations to specific projects. Aid of this kind could greatly extend the research program.

Staffing the Project

All university-centered research organizations receive guidance and direction from members of the Faculty, who are already on the university payroll, and are expected to engage in research as part of their regular duties. If an overload of work occurs, the university administration may be expected to make provision for it. This reduces the problem of staffing a research organization to a matter of providing for a full time secretary-librarian and, later, a manager. It is understood that much clerical and statistical assistance is required for each project. This staff is hired by the hour from the pool of senior and graduate students on the campus, and paid for from the project's grant. Additional secretarial assistance is secured in the same way. The plan has some virtue. It insures the maximum research with as little cost as is possible. At present the problem of a manager remains unsolved. Probably it is best to leave it this way, as in time the operations of the research committee will define its needs more clearly.

Publications

We are well pleased with the new format of the *Alberta Journal of Educational Research*. It will continue and grow. There is a need for two additional publications. First is the *Research Newsletter*. It will be a four-page report on plans and progress of ongoing projects, and will spell out the findings of research in the language of the man on the street. It will go to all boards of trustees, all Home and School Associations and teachers' locals. It will constitute an effort in the direction of improved communication and better public relations. Since it will be relatively inexpensive

it will be distributed free of charge. Second, we hope to publish the occasional *Educational Research Monograph*. Each monograph will summarize Alberta research in a certain area, selecting its materials from a number of individual projects. A valuable feature of each monograph will be the summarization of research findings elsewhere on the subject under study. The monographs are intended to be scholarly contributions to the literature, suitable for library shelves; they must, of necessity, have a better binding than the research journal. The monographs will consolidate the more important research in reasonably permanent form, and will be the prestige publication of the organization.

Research Library and Equipment

All research is based on and aided by access to the books, journals and monographs which contain the reports of current and past research. Nothing is more time-consuming than interrupting one's work to go to a library, perhaps in another building; and there is always the frustration of finding that a particular journal is not immediately available. It has been decided, therefore, to establish a library devoted to educational research which will be maintained by the research committee for the use of a limited number of persons actively engaged in research. In terms of the total budget the money required will not be great, yet no single factor will contribute so much to the advancement of the quality of research.

At first the library will be controlled by the secretary-librarian. Later it may require the services of a trained librarian. The greatest care will be exercised in regulating its use, as, obviously, its chief attraction is the fact that its materials must always be there, ready for use by the research workers.

The University has provided the research branch of the Faculty with first class computing equipment. Whether we will require IBM machines for card punching and sorting, item analysis and test correction must be left to the future. At present we have access to such equipment as the university owns, and, by arrangement, may use the equipment of the departments of Education and Municipal Affairs.

Research Fellowships

Under the Carnegie agreement the sum of \$5,500 will be used for fellowships in 1956-57, rising to \$8,000 in 1960-61. This will permit two major awards of \$2,500 each, and a minor award of \$500 to three candidates for the M.Ed. or Ph.D. degrees. The awards are being brought to the attention of candidates across the Dominion, and will be given to the most deserving in terms of academic and professional attainment. Parenthetically, Albertans may be accepted as candi-

dates for the Ph.D. degree if they hold one degree from another university. Applications for these awards may be made to the Dean of Education now. The fellowships are intended to finance intramural study leading to an advanced degree.

The fact that fellowships of this nature are available this year under the Carnegie grant, and that more will be available in 1957 and thereafter under the Kellogg and Carnegie agreements, is bound to result in an unprecedented influx of able and experienced scholars from all parts of Canada. This means that the emphasis on graduate studies will be greatly increased. It also suggests that the variety of candidates will make for an atmosphere of mutual stimulation in educational matters which may raise the Alberta campus to national status.

3. The Future

The Carnegie and Kellogg awards are, at once, a challenge and a recognition. They would not have been made had the faculty not shown potential for growth. The role played by the staff in supporting the CEA-Kellogg Short Courses paved the way for the new Kellogg award for a graduate program in administration and supervision. The creation of a cooperative research organization in Alberta, unique in the Canadian provinces, made possible the Carnegie grant in aid of educational research.

The challenge of these grants is to further growth. Of the research organization and the research program of the faculty generally the challenge can be expressed in a simple question. Can the faculty utilize the Carnegie grant in such a way as to emerge at the end of the five year period with a functioning and effective research organization, a record of significant and definitive research, and a smoothly functioning research program in its graduate school which qualifies it for national recognition.

For the graduate school the challenge is to use the Kellogg grant in such a manner that the University of Alberta, in the next five years, will attain national status as a center for advanced studies in educational administration and supervision.

So much for the immediate challenge; another, will come at the end of the five year period when foundation assistance is withdrawn. If the graduate program is to continue it will have to secure increasing financial support from the University. This will certainly follow if, during the five year period, the graduate program gains wide recognition, and a steady flow of candidates from other provinces. The research organization will also require more assistance than is presently available. It may secure more support from the University. It should plan, however, for more donations, con-

tributions from school boards, teachers' organizations and from industry.

Another challenge following the five year program is the replacement of the scholarships which have been created by Kellogg and Carnegie funds. In all probability these could be secured from industry, as industry increasingly accepts its obligation to the universities.

The prospect of growth is always stimulating. The Faculty of Education must meet the immediate challenge of development of an effective graduate school, and the operation of an efficient research program. It must, at the same time, plan for the continuance and extension of both programs after external aid disappears. This is, at once, our problem and opportunity.

INSURANCE PRACTICES AND EXPERIENCE OF DIVISION AND COUNTY SCHOOL SYSTEMS IN THE PROVINCE OF ALBERTA

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The Problem

It is common knowledge that through the careful compilation of significant data, the application of statistical methods by competent actuaries, and the use of special training programs for personnel, modern insurance companies have prepared themselves for the scientific underwriting of an exceedingly wide range of insurable risks. It is also common knowledge that Alberta School Boards, as public trustees, assume a variety of risks which may or may not be insured. What school risks are insured, what types of insurance are carried, from whom insurance is purchased, and whether expert guidance is sought in planning insurance programs, or whether any definite insurance plans exist at all, are things which are not so generally known. It is with these things in mind that answers to two broad questions are sought: how do school boards spend their insurance dollars, and are these dollars wisely spent?

The School Act states that the board of a school division shall "insure and keep insured all school buildings and equipment."¹ The Act makes the insuring of school moneys handled by the treasurer mandatory;² and it gives school boards the right to exercise discretionary powers in determining whether to "effect and keep in force a policy or policies indemnifying the board and its employees, when acting on behalf of the board, against liability in respect of any claim for damages or personal injury."³ The Public Service Vehicles Act states that no certificate of operation of a school bus shall be granted unless the vehicle is covered by a passenger hazard liability insurance policy, the minimum limits of which are set forth in the Act and vary according to the capacity of the bus.⁴ Thus school boards are legally bound to carry a treasurer's bond (the amount of which is determined by the Minister of Education) and to carry fire insurance; they must carry passenger hazard liability insurance on school-owned buses, and they have the right to carry other forms of liability insurance.

¹Alberta Department of Education, *An Act Respecting Schools*, Sec. 222(f), p. 68.

²*Ibid.*, Sec. 194, p. 62.

³*Ibid.*, Sec 175(c), p. 52.

⁴Alberta Department of Highways, *The Public Service Vehicles Act and Regulations*, Sec. 6.3.1, p. 85.

Related Studies

Fire insurance

In 1935 Holy reported on a study of state insurance plans for school buildings in Wisconsin and North Dakota and on a self-insurance plan in Cincinnati.⁵ Under the Wisconsin plan, started in 1903, the fire-insurance rates charged for school buildings were 49 per cent of those charged by regular stock companies in the state. The rates charged under the North Dakota plan, which started in 1919, were approximately 75 per cent of those charged by fire-insurance companies operating in North Dakota.

The self-insurance plan put into effect in Cincinnati in 1912 was estimated to have saved Cincinnati \$204,000 in the first twenty-two years of operation. Holy based this finding on insurance premiums paid in five other large cities in Ohio. He found that no appropriation to the Cincinnati self-insurance fund had been made by the school board during the eleven-year period preceding his study in 1935.

In 1947, twelve years after Holy's study, Shuman re-investigated the Cincinnati self-insurance plan.⁶ He found that after thirty-five years of operation the Board of Education had paid \$317,480 into the insurance fund, had taken \$42,117 out to pay losses and safe-deposit rental, and still had \$637,092 left in the fund due to its earnings.

Shuman reported that in 1928 the general assembly of Pennsylvania authorized a study of school-plant insurance covering the five-year period prior to 1928 and including about one-quarter of the school districts in that state exclusive of Philadelphia and Pittsburg.⁷ Losses were found to be slightly more than 20 per cent of the premiums. Shuman reported that similar studies in Arkansas, Maryland, Missouri, Texas, and Virginia showed the respective losses of these states to be 41.1, 17.2, 39, 49.2 and 77 per cent of the premiums paid; and that a school fire-insurance study made by The Education Council of the Ohio Education revealed that in the years 1930-46, Ohio boards of education spent eight million dollars for insurance and received in adjustment for losses 23 per cent of the premiums they had paid.

The National Association of Public School Business Officials carried out an extensive study of school insurance which they reported in 1932.⁸ They found that school districts of 345 cities of 33 states and of 35 Canadian cities, for the ten-year period 1921-30, jointly reported that approximately 29 per cent of the premiums paid for fire protection had been returned in settlement of fire

⁵T. C. Holy, and John H. Herrick, "School-plant Insurance," *Encyclopedia of Educational Research* (1950), p. 1,117.

⁶*Ibid.*

⁷*Ibid.*

⁸*Ibid.*

losses. Forty-nine city school districts and five states reported that they were successfully operating their own insurance plans at low costs. The high prevailing rates of stock insurance companies were declared to be responsible for causing school and other public officials to seek protection through self-insurance and mutual companies. The Association stressed the importance of complete records of insurance experience, knowledge of property values, and dependable property appraisals for insurance purposes.

School bus insurance

In 1940 Noble published an extensive study of pupil transportation in the United States.⁹ He included in his report the findings of a number of important transportation studies which had been made previous to his own. Noble affirms that the whole field of transportation insurance needs to be studied in order that more desirable practices may be identified and generally adopted; that most state education departments do not assemble necessary data concerning coverage, premiums, claims, and accidents; that most states are not in a position to furnish reliable advice on transportation insurance due to lack of adequate data; and that there is no uniform policy regarding transportation insurance.¹⁰

Insurance companies, Hutchins estimated, returned in settlement of claims less than five per cent of the premiums which school boards paid for transportation insurance.¹¹ As one step which might be taken to reduce the cost of insurance, Hutchins recommended that school boards avoid excessive liability coverage. Van Ausdal reported a tendency among school boards to avoid liability insurance policies which provide coverage of more than five thousand to ten thousand dollars per person.¹²

Following a study of 3,880 buses in Ohio, Van Ausdal reported that the school boards had paid \$160,546 for transportation insurance in 1938 and that insurance companies had returned \$5,489 in settlement of claims—3.4 per cent of the premiums paid.¹³ Van Ausdal recommended that Ohio school boards provide accident insurance protection in the amount of five hundred dollars for a pupil death with scaled amounts for injuries and compensation for medical fees; and that they provide liability insurance in the amount of five thousand dollars for property damage and not exceeding twenty-five thousand dollars for bodily injury.

Joyner studied school transportation insurance costs for eighteen districts in twelve different states for the period starting with the

⁹M. C. S. Noble, *Pupil Transportation in the United States*.

¹⁰*Ibid.*, pp. 478-82.

¹¹*Ibid.*, p. 482.

¹²*Ibid.*, p. 484.

¹³*Ibid.*, pp. 485-6.

school year 1927-28 and ending with the school year 1937-38.¹⁴ He found that on school-owned buses the amount of paid claims was 13.1 per cent of the total premiums, and that on contract school buses the paid claims amounted to 40.3 per cent of the total premiums.

Noble reported that in a study of 2,923 buses in 163 rural districts made by Teachers College, Columbia University, it was found that claims paid amounted to 12.22 per cent of the cost of insurance.¹⁵ His own extensive studies in the field of school transportation insurance led him to conclude that "since all studies reported reveal such wide differences between premiums paid and claims, either reductions in the rates charged by insurance companies or state programs of insurance are warranted."

The Encyclopedia of Educational Research in reviewing studies in the field of school transportation insurance states that "the most impressive fact revealed by the comprehensive survey made by the National Education Association, Research Division, and the Office of Education is the confused and nebulous situation which exists in the field of school transportation insurance."

Liability and pupil accident insurance

Reeder¹⁶ states that the power of school boards to purchase liability and pupil accident insurance is not nearly so clear as their power to purchase fire insurance. He points out that courts have held that a school district is not, in the absence of a statute imposing it, subject to liability for injuries to pupils of public schools suffered in connection with their attendance thereat. However, Reeder notes a recent tendency on the part of the courts in some states to hold school boards liable for the negligent performances of duties. Justice and logic, he concludes, point to the fact that school boards can do wrong, and should be held responsible for their torts. A review of school insurance studies given in the Encyclopedia of Educational Research¹⁷ indicates that courts are divided as to whether school boards can be held liable for damages. The writer of the articles, however, contends that "government non-liability in tort is indefensible and should be superseded by statutory enactment."

Method of Securing Data

For the present study a questionnaire was developed and mailed to the secretaries of the fifty-two Divisions and seven Counties in

¹⁴Ibid., p. 492.

¹⁵Ibid., p. 489.

¹⁶W. G. Reeder, *The Fundamentals of Public School Administration*, pp. 452-3.

¹⁷Newton Edwards, "Court Decisions," *Encyclopedia of Educational Research* (1950), pp. 1,095-6.

Alberta. Detailed information was requested for the calendar year 1954 and estimates for insurance expenditures and indemnities only were requested for the ten-year period 1945-54. Fifty-one secretaries (86.3 per cent) returned questionnaires. Wherever sections dealing with specific types of insurance were left blank, or stroked out, they were judged not to apply to the particular school system.

Respondents were asked to supply information relative to the following types of insurance:

Fire Insurance

Tornado, Cyclone, Windstorm, and Hail Insurance

Boiler Insurance

School Bus Insurance

Playground and Premises Liability Insurance

Employer's Liability Coverage

Accident Insurance

Insurance against Theft, Robbery, or Pilferage

Secretary-Treasurer's Bond

Glass Insurance

Other Insurance Carried but not listed above.

Alberta Insurance Practices and Experience

Fire insurance

In an attempt to discover whether school insurance business had been placed in accordance with definite policies formulated by school boards or placed as much by chance as by rule, respondents were asked to state the basis upon which fire insurance business had been allocated. School boards subscribe to a variety of policies, or no policy at all, as shown in Table I. Seventeen school systems (32 per cent) stated that they had no set policy for allocating insurance business. Only two school boards stated that their insurance business was allocated in approximately the same ratio as the school taxes paid by the various agencies within the school area. Twenty-five school boards (nearly 50 per cent) reported such allocation policies as dividing the area geographically and placing the business according to the location of the risk and the agent, selecting insurance brokers, and making insurance business open to bids. The policies reported in Table I suggest that a large number of school boards (more than 33 per cent) have not reached the point where they consider it necessary to formulate clear policies to guide them in placing their insurance business. The variety of practices subscribed to by those school boards which have formulated policies indicate lack of agreement as to what constitutes best practice.

TABLE I
ALLOCATION OF FIRE INSURANCE BUSINESS,
FIFTY-ONE SCHOOL UNITS, ALBERTA, 1954

Policy	No. school units	Percentage of school units
1. No established policy	17	32
2. Business allocated in same ratio as taxes paid by agency	2	4
3. Business allocated according to geographical location of risk and agent	6	12
4. Policy limited to placing business with single agent	5	10
5. Business placed with insurance broker living outside school area	10	20
6. Business open to bids and awarded on bases of adequacy of coverage, quoted premiums, and services guaranteed	9	18
7. Policy not stated	2	4
Total	51	100

Nearly half (46 per cent) of the school systems which reported definite policies regarding the placing of fire insurance either placed their insurance with insurance brokers directly or made it open to bids which might be taken up by brokers. It is reasonable to suppose (and the marginal notations of several secretaries bear this out) that large, heavily insured, outlying school units will tend to place their business locally.

Arrangements for joint underwriting by a number of insurance companies were mentioned in marginal notations referring to some of the larger policies. Reference was also made to the practice by insurance brokers of returning a portion of the fees earned to the local insurance agents. One respondent stated that sixty per cent of the fee earned by the broker was returned to local agents, the remainder being retained as payment for his expert services. Another respondent reported that fifty per cent of the fee was returned to local agents.

In discussing placing of insurance, Reeder states that school officials have two problems.¹⁸ The first is that of placing the insurance only with reliable companies; the second is that of

18W. G. Reeder, *The Fundamentals of Public School Administration*, p. 459.

apportioning the insurance to the different agencies on a just and equitable basis. Opening school insurance business to tender and consulting insurance brokers on school insurance problems clearly represent attempts to spend the insurance dollar wisely and to place it in reliable hands. Dividing school areas geographically for the purpose of awarding insurance business among local agencies in proportion to the taxes paid by each, and returning to local agents a share of the fees earned by the broker—these are attempts at just and equitable apportioning of school insurance business. In the present study only nine school units were reported as calling tenders for insurance and selecting agencies on the bases of service, reliability, adequacy of coverage, and quoted rates. This does not imply that other school units are spending the insurance dollar unwisely, but in a society based on free competitive enterprise the awarding of contracts through the medium of tenders is a recognized procedure.

In 1954 (Table II) school boards had in effect fire insurance policies amounting to more than forty-five million dollars. For this insurance they paid over one hundred forty thousand dollars. The insuring companies returned in settlement of claims arising out of loss due to fires occurring in 1954 nearly seventy-two thousand dollars. For every dollar which school boards spent for insurance in 1954 the insuring companies returned fifty-one cents in settlement of claims. In other words, the insurance companies returned in settlement of claims fifty-one per cent of the insurance premiums.

TABLE II
FIRE INSURANCE COVERAGE, PREMIUMS, AND CLAIMS
PAID IN SETTLEMENT OF LOSS DUE TO FIRE, FIFTY-ONE
SCHOOL UNITS, ALBERTA, 1954

Total amount of fire insurance reported in effect in 1954	\$45,597,152.94
Total premiums reported chargeable to 1954 school accounts	140,349.02
Total claims reported paid in settlement of fire losses occurring in 1954	71,923.00
Ratio of claims paid to premiums paid	51/100

According to estimates made by secretaries (Table III), school boards paid over nine hundred thousand dollars for fire insurance for the ten-year period 1945-1954, and had returned to them nearly four hundred thousand dollars in settlement of claims due to fires occurring during the same period. That is, during the ten-year period 1945-1954, insurance companies returned 44 per cent of the premiums school boards paid for protection. The percentage of

premiums returned over the ten-year period 1945-1954 is seven per cent less than the return reported (Table II) for the year 1954—a fact which suggests that fire losses in 1954 were unusually high.

TABLE III
ESTIMATED PREMIUMS AND CLAIMS PAID DURING
TEN-YEAR PERIOD, FIFTY-ONE SCHOOL UNITS,
ALBERTA, 1945-1954

Estimated premiums paid for fire insurance, 1945-1954 inclusive	\$908,795.79
Estimated claims paid in settlement of fire losses occurring during the years 1945-1954 inclusive	396,417.25
Ratio of estimated claims paid to estimated premiums paid, 1945-1954 inclusive	44/100

Bus insurance

Transportation insurance is written to cover a number of different risks, commonest of which are fire, theft, collision, property damage, and public liability. Fire insurance protects the owner against loss of the vehicle by fire, and theft insurance provides compensation should the vehicle be stolen. Collision insurance provides for reimbursement of the owner should his vehicle be damaged in collision with another vehicle or object. Property damage insurance, on the other hand, provides protection for the insured should his vehicle cause damage to the property of others. Public liability insurance protects the insured against loss arising out of court action. It is commonly written in two forms, road hazard and passenger hazard. Road hazard insurance covers liability which may arise out of the injury or death of persons not passengers on the vehicle. Passenger hazard insurance is the form of insurance which must be carried on school buses before a certificate of operation is granted.¹⁹

All school boards reported that they carried passenger hazard liability insurance on school owned buses. Ninety-two per cent of the school boards reported that they carried this form of insurance on hired school buses. Eight per cent of the school boards reported that they carried no insurance whatsoever on hired buses. School boards not carrying liability insurance on hired buses leave themselves unprotected against claims arising out of court action should they be sued jointly with the bus owner.

The lowest amount of passenger hazard liability insurance reported was five thousand dollars. This amount was within the

¹⁹Alberta Department of Highways, *The Public Service Vehicles Act and Regulations*, Sec. 6.3.1, p. 85.

requirements of The Public Service Vehicles Act.²⁰ However, on January 1st, 1956, Order-in-Council Number 1,003-55 set the minimum limits of passenger hazard liability coverage at ten thousand dollars and fifty thousand dollars for buses with passenger capacity not exceeding 12, ten thousand dollars and one hundred thousand dollars for buses with passenger capacity in excess of 12 but not exceeding 30, and ten thousand dollars and two hundred thousand dollars for buses with passenger capacity in excess of 30. It is interesting to note that 88 per cent of the school boards reported in 1954 that they carried passenger hazard insurance equal to, or in excess of ten thousand dollars as is now required by the Public Service Vehicle Act. It would appear from the reported coverage that school boards felt the need for increased protection before higher coverage was required by law.

Van Ausdal recommended that the amount of passenger hazard liability insurance carried by Ohio school boards should not exceed twenty-five thousand dollars for one claim.²¹ Forty-one per cent of the liability coverage reported was in excess of twenty-five thousand dollars. In view of Van Ausdal's recommendation, many Alberta school boards appear to be carrying excessive passenger hazard liability insurance with respect to a single claim arising out of a bus accident.

School units reported (Table IV) that the cost of transportation insurance in 1954 was \$82,903.88 and that the amount paid out on their behalf by insurance companies was \$600.00. In other words, for every one hundred dollars spent by school units for transportation insurance, less than seventy-five cents was paid out by the insurance companies in settlement of claims arising out of the use of school buses.

TABLE IV
REPORTED COST OF SCHOOL BUS INSURANCE AND
AMOUNT OF CLAIMS PAID, FIFTY-ONE SCHOOL UNITS,
ALBERTA, 1954

Category	Premiums reported paid by school units	Claims paid by insurance companies as a result of accidents occurring in 1954
School-owned buses	\$46,647.57	\$600.00
Hired buses	36,256.31	
Total	\$82,903.88	\$600.00

²⁰Ibid.
²¹Noble, *op. cit.*, p. 486.

Van Ausdal reported that insurance companies paid out in settlement of claims 3.4 per cent of the premiums they received on school-owned buses.²² Joyner reported 13.1 per cent for school-owned buses and 40.3 per cent for contract buses.²³ According to Van Ausdal, the ratio of settlements made to premiums paid was 4.5 times as high as that reported for Alberta, and the percentages reported by Joyner for school-owned and for contract buses were, respectively, 17.5 and 53.7 times as high as the percentage reported in Alberta.

School bus travel in Alberta should be relatively free from accident. The buses themselves are mechanically superior to the vehicles used at the time of the studies reported by Van Ausdal and Joyner; the roads on which the greater part of Alberta school bus travel takes place are not congested with traffic; and school bus equipment and its operation are subject to careful supervision and regulation by the Alberta Highway Traffic Board. Alberta School bus insurance rates should reflect the excellent conditions under which Alberta school buses operate. They do not. Paying eighty thousand dollars for six hundred dollars' protection is not spending the insurance dollar wisely. Alberta school boards should seek and get greatly reduced school bus insurance rates.

Playground and premises liability insurance

Most accidents which occur at school are not in any way due to neglect on the part of the school board, nor are they due to any lack of reasonably careful supervision; but there is always the possibility of accidents occurring due to faulty equipment, neglect, or lack of proper supervision. Such accidents may give rise to claims against the school board for damages. To protect themselves against loss as a result of court action, many school boards carry a type of insurance known as Playground and Premises Liability Insurance. Liability insurance does not automatically reimburse the injured just because he sustained injury. The injured must take court action and prove responsibility or neglect on the part of another party, say, a school board. Liability insurance is not to be confused with accident insurance, which reimburses the injured regardless of who was at fault. Accident insurance is paid automatically as a result of an accident; liability insurance is paid on behalf of the insured if he has been sued and proven liable.

Ninety-six per cent of the school boards reported that they carried playground and premises liability insurance. Only one school board reported definitely that it did not carry this type of liability insurance. The fact that school boards tend to carry play-

²²Ibid.

²³Ibid.

ground and premises liability insurance does not prove that the risk of loss due to court action is great; it does, however, indicate that school board members rest easier of mind knowing that, should claims for damages arise, they will have the expert services of the insurance company's adjusters and legal personnel and that they, themselves, will not have to deal directly with the parents. The fact that parents presenting claims for damages must deal through their own lawyers with the insurance company, and not directly with school board members (some of whom they may know) undoubtedly deters many from presenting numerous doubtful claims.

The amounts of liability coverage carried vary from five thousand dollars with respect to a single claim to five hundred thousand dollars with respect to one accident involving several claims.

The school boards reported that they paid \$10,430.49 for playground and premises liability insurance in 1954 and that insurance companies paid \$45 in settlement of claims arising during the same year. From the figures reported it appears that insurance companies returned in settlement of claims 45 cents out of every 100 dollars that school boards paid in premiums. However, it was also reported that in 1955 a claim for damages had been filed as a result of injuries sustained due to an accident occurring in a playground in 1954.²⁴ The amount of damages asked for in the claim was ten thousand dollars. Should the courts decide in favor of the plaintiff and award damages to the extent of ten thousand dollars (the case is to come before the court in the Spring of 1956) insurance companies will have paid out practically all of the premiums they received in 1954 in settlement of claims arising out of accidents occurring in the same year. On the other hand, if the plaintiff's claim is not upheld by law, or if the plaintiff is awarded a nominal sum (say, actual expenses) the percentage of premiums returned in settlement of claims arising in 1954 will remain relatively small. School boards will be well advised to follow this case through the courts as the judge's decision will give a good indication of the attitude of Alberta's courts toward school board liability with respect to accidents occurring on school premises.

Respondents were asked to report the total amount paid out by insurance companies on behalf of school boards carrying playground and premises liability insurance during the years 1945-1954 inclusive. Ten school boards reported that insurance companies had paid a total of \$3,882 in settlement of claims during the ten-year period under review. Twenty-seven school boards reported that

²⁴Notice of claims for damages amounting to \$10,000 was filed in 1955 as a result of a playground accident occurring in Rocky Mountain S.D. No. 15 in 1954. The case was still pending in March 1, 1956.

insurance companies had not made any payments during the stated period. The remaining school boards (25.5 per cent) either failed to report or reported that they did not have the necessary information.

On the basis of premiums reported for 1954, the writer estimates that school boards paid approximately one hundred thousand dollars for playground and premises liability insurance during the ten-year period, 1945-1954. The reported amount of claims paid (\$3,882) indicates that insurance companies paid out approximately four per cent of the premiums received in settlement of claims arising during the same period. The indicated percentage of premiums paid in settlement of claims may not be correct, since 25 per cent of the school boards failed to report. It may be argued, however, that four per cent is a close estimate of the amount of premiums returned in settlement of claims since respondents would tend to remember large payments and report them.

Pupil accident insurance

Many people fail to make a clear distinction between accident insurance and liability insurance. Liability insurance is carried to protect the insured against damages assessed by a court as the result of some action, or neglect, for which the insured has been proved to be responsible. Accident insurance, on the other hand, provides compensation for the injured regardless of who was at fault. Accident insurance is usually paid on receipt of a doctor's certificate stating the extent of the injuries sustained. Pupil accident insurance policies insure children only while at school and while going to and from school. School boards may carry pupil accident insurance to reimburse parents for expenses incurred as a result of accidents to children attending school, or the parents themselves may carry accident insurance for their own protection. The number of school boards carrying accident insurance, the premiums paid, and the claims paid, are reported in Table V.

Relatively few school boards, as shown in Table V, carried pupil accident insurance. Those who did carry insurance paid more than four times as much in premiums as the insuring companies did in settlement of claims. The low claim-premium ratio (24 per cent) suggests that accident insurance places an unnecessary financial burden on school boards; the high percentage of school boards who do not carry pupil accident insurance (at least 88 per cent) suggests that school boards should not be carrying this form of insurance at all.

Why do a few school boards carry pupil accident insurance? Parents are concerned about the welfare of their children when

they are away from home. Parents may not give particularly close supervision themselves: they frequently allow their children to play rough games without supervision, drive trucks and tractors, swing in trees, play on the streets, and engage in countless activities around the home and the farm that are more hazardous than school attendance. But when the children are at school, the parents are concerned: they want the children supervised, protected. Parents support the school through taxes, and they feel that, since the children must go to school, they have the right to make certain demands on the school. The demands which parents have made for reimbursement when children have been injured have led some school boards to provide pupil accident insurance. Clearly school boards have the right to carry liability insurance to protect themselves against claims for damages;²⁵ but the right to carry insurance which reimburses others without furnishing the school board protection is not so clearly defined.

TABLE V
PUPIL ACCIDENT INSURANCE, FIFTY-ONE SCHOOL
UNITS, ALBERTA, 1954

	No. school units	Premiums paid	Claims paid by insurance co.'s
School units carrying accident insurance	4	\$2,894.40	\$690.70
Do not carry accident insurance	45		
Did not answer question	2		
Total	51	\$2,894.40	\$690.70

If school boards do not wish to carry pupil accident insurance, what are the alternatives? School boards may point out that school attendance is relatively safe and ignore parental pressure, or they may make provision through their organization for parents to purchase pupil accident insurance on a voluntary basis. That is, school boards may arrange with companies writing pupil accident insurance to distribute through the schools literature describing pupil accident insurance and telling parents how to obtain the insurance. Parents who wish to participate in the insurance plan signify their intention in writing and send the premiums to the school. In this way, pupil accident insurance may be obtained at a cost of a very few cents per month to parents desiring such coverage.

²⁵Alberta Department of Education, *op. cit.*, Sec. 175 (c), p. 52.

The provision of pupil accident insurance on a voluntary basis saves the school board considerable expense and, at the same time, throws the onus of responsibility for carrying pupil accident insurance on the parents, where many people believe it belongs.

A general demand for insurance that would reimburse parents for expenses incurred through injury to children attending school has, within the past few months, led several school boards to make provision for parents to purchase pupil accident insurance on a voluntary basis.²⁶ The growing demand for accident insurance came with the realization on the part of many parents that liability insurance was not what they thought it was. Many parents had been content knowing that school boards carried liability insurance. But when they learned, as a result of asking school boards to reimburse them for expenses incurred due to accident to their children at school, that liability insurance does not automatically pay hospital bills, doctor's bills, and such, they demanded accident insurance. The school boards argued that they should carry liability insurance to protect themselves against claims for damages, that blanket accident insurance policies would be wasteful because some children were already covered by family accident policies. They argued further that since pupil insurance policies were introduced public pressure would force their continuation even if premiums rose beyond an amount school boards were prepared to pay.

As a result of parental demand and school board reasoning, provisions were made for parents to purchase pupil accident insurance on a voluntary basis. At least two purposes were served by the decisions: parents subscribing to the insurance plan were relieved of worries concerning possible expenses in connection with accidents which might befall their children while attending school, and school boards were relieved of embarrassment growing out of situations in which they found themselves in sympathy with the parent of an injured child but unable to provide financial assistance. In view of what appears to be a growing demand on the part of many parents for pupil accident insurance, school boards might give careful consideration to plans which provide parents with an opportunity to purchase pupil accident insurance through the school, at low cost and on a voluntary basis.

Total Cost of Insurance

For insurance of all kinds school boards paid in 1954 more than two hundred forty thousand dollars (Table VI). They received in

²⁶Red Deer S.D. No. 35, Red Deer S.D. No. 104, Lacombe S.D. No. 56, Red Deer No. 17, and Rocky Mountain S.D. No. 15 adopted a voluntary pupil accident insurance plan underwritten by Canada Health & Accident Assurance Corporation, Waterloo, Ontario, early in 1956.

settlement of claims arising during the same year less than eighty thousand dollars. In other words, they received a return of less than 33 cents of every dollar invested in school insurance in 1954. On the basis of these figures it would appear that Alberta Division and Country school systems working co-operatively and using current insurance rates could carry their own insurance as a group, pay their members eighty thousand dollars a year in settlement of claims, and still have one hundred sixty thousand dollars a year out of which to build an contingency reserve and pay for the operation of their own insurance bureau. Should Alberta rural school systems not wish to carry their own insurance, they could by pooling their business and acting as a group place themselves in a very strong position to bargain with insurance companies for greatly reduced rates.

TABLE VI
TOTAL COST OF INSURANCE AND TOTAL CLAIMS PAID,
FIFTY-ONE SCHOOL UNITS, ALBERTA 1954

	As reported in summary*
Premiums chargeable to 1954 school accounts	\$247,932.54
Claims paid to or on behalf of the school system, 1954	78,091.35

*Amounts adjusted for school units not reporting totals in summary.

The cost of school insurance in 1954 represented approximately one per cent of the cost of operation of the school systems reported. While school insurance does not represent a large portion of the annual budget, it does represent a large item of expenditure on which considerable saving could be made without impairment of services. By pooling their insurance business, Alberta School units could provide themselves with expert advice on all school insurance problems, establish a uniform school insurance policy, provide adequate and effective coverage of all school risks insured, and save money at the same time.

Conclusions and Recommendations

The fifty-one Alberta school systems paid nearly one-quarter of a million dollars for insurance of all kinds in 1954. They had returned to them, or paid on their behalf, less than one third of the amount spent for premiums. The insurance experience of Alberta school boards is not unique: similar conditions have been reported for school boards in other parts of Canada and United States. Some of these school boards reduced their insurance costs through

bargaining with insurance companies for lower rates, others through state insurance plans, and still others through self-insurance. The successful experience of school boards who have taken positive steps to cut insurance costs should encourage Alberta school boards to follow careful examination of their own insurance practices with equally positive steps to reduce the cost of their school insurance.

School boards may press for low cost insurance individually or as a group. Group action strengthens their bargaining power; it also reduces duplication of costly services and promotes advantageous procedures not practical for individual school boards. Whether they seek low cost insurance protection individually or as a group, school boards will find many of the recommendations which follow equally applicable.

1. School boards should keep complete and accurate records of their insurance costs and claims.

2. Accurate building and equipment appraisals should be made and kept up to date for fire insurance purposes. Blanket fire insurance policies should be written with eighty per cent co-insurance clauses, and insurance should be kept in force at the contracted amount.

3. Liability insurance, other than that carried on school buses, should not exceed ten thousand dollars for a single claim and fifty thousand dollars for one accident involving several claims.

4. Insurance on school-owned buses should be limited to fire insurance, property damage insurance, passenger hazard liability insurance, and road hazard liability insurance. Insurance on contract buses should be limited to passenger hazard and road hazard liability insurance. Passenger hazard and road hazard liability insurance carried on school buses should not exceed the minimum limits set forth in the Public Service Vehicles Act, and property damage insurance should not exceed five thousand dollars.

5. Liability insurance should be carried on behalf of teachers to protect them against claims for damages arising out of the regular performance of their duties.

6. School boards should not carry accident insurance; but they should make provision for parents to purchase pupil accident insurance through the school, at low cost and on a voluntary basis, without placing undue burden on the teaching staff.

7. All forms of liability insurance carried should be placed through one agency to obtain reduced premiums.

8. All unnecessary insurance coverage should be eliminated.

9. School boards should call for tenders for school insurance business.

The foregoing recommendations are equally applicable whether school boards continue to look after their individual insurance needs or choose to organize so as to deal collectively with their insurance problems. As a group, school boards could pool their insurance business and bargain for reduced rates; or they could form their own company to underwrite their insurance needs. It is with the latter procedure in mind that the writer invites consideration of the following special recommendation.

Alberta Division and County school boards should form their own insurance company. They should hire expert personnel to operate their business, adopt uniform insurance practices, and charge themselves for insurance at the same rates currently charged by stock insurance companies for the first ten years. After ten years of operation, on the basis of the insurance experience reported for 1954, the school boards' company should have acquired a contingency fund of approximately one million dollars. When the contingency fund reaches one million dollars, premiums should be reduced to the point where premiums plus the earnings of the contingency fund balance operation expenses and for any year in which experience justifies it, premiums should be eliminated altogether. The Cincinnati school boards who operated their own fire insurance plan proved that premiums could be eliminated. There is every reason to believe that Alberta school boards could, through self-insurance, eventually eliminate insurance premiums on all forms of insurance they are obliged to carry.

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THE ADMINISTRATION OF HIGH SCHOOLS IN ALBERTA DURING THE TERRITORIAL PERIOD, 1889-1905

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Emerging Pattern of Public Control

The earliest pattern for the control of secondary education in western Canada was private and denominational. In Manitoba fully organized secondary school programs were offered in the 1860's in St. Boniface College (Roman Catholic) and St. John's College (Anglican). The first secondary schools established in the North-West Territories after Manitoba was separated from the Territories and made into a province were also under private control. The Reports of the Board of Education published in the 1880's refer to certain private secondary schools operating in the territories—for example, the Roman Catholic Convent Schools at Prince Albert and Calgary, and the Presbyterian High School at Prince Albert.¹

A pattern of public control of secondary education gradually emerged in western Canada during the last quarter of the nineteenth century. The public high school at Victoria dates from 1876. The publicly supported collegiate institute at Winnipeg was established in 1882.

It is difficult to determine exactly when the first classroom instruction at the secondary school level was given in Alberta. It is possible that one or two private denominational schools offered some secondary school subjects before any public schools were organized to offer instruction at the high-school level. Probably some of the public schools in the early years of their graded school organization offered some high school subjects before they had a high school in name or in organization.

The first fully organized high school departments in the province of Alberta were established in Calgary. With the coming of the railway Calgary replaced Edmonton as the main trading and educational center. About five years after the railway began to serve Calgary and the surrounding district, the town had grown to the point where it had two fully organized high school departments, one in the Protestant Public School District, and the other in the Roman Catholic Separate School District.

Calgary Protestant Public School District Number 19 was organized in 1885. In the same year the school population was large

¹Board of Education, N.W.T., *Annual Reports*: 1886-87, p. 14; 1888-89, p. 11.

enough to require the services of two teachers. Four years later Calgary Public School District operated a four-room school. James Short, principal of the school, organized and taught a high school department. Beginning with the summer school quarter in 1889 Calgary Public School District received the union high school grant.²

The early development of the Calgary Roman Catholic Separate School District closely paralleled that of the Calgary Protestant Public School District. In 1885 the Sacred Heart Convent operated by the members of the Congregation of the Faithful Companions of Jesus became part of the newly established Lacombe Roman Catholic Separate School District Number 1 (Calgary). By 1889 Mother Greene had three assistants on the staff of the Convent School and she herself specialized in offering instruction at the secondary school level. Beginning with the autumn school quarter in 1889 Calgary Separate School District received the union high school grant.³

Other towns soon followed the lead of Calgary in establishing high school departments. In the 1890's high school instruction was offered in the senior rooms of the public schools at Medicine Hat, Lethbridge, Edmonton, and Strathcona.⁴ Shortly after the turn of the century high school departments were organized in several other towns, including Wetaskiwin, Red Deer, Lacombe, Cardston, and Macleod. When the new province of Alberta was formed in 1905, public control of secondary education was emerging as a dominant pattern.

Upward Extension of the Public School System

The first high schools in Alberta arose as a gradual expansion upward of the common schools. Students in the common schools were classified into "standards" on the basis of their progress through the school readers. Students reading from the first reader were grouped in standard I, those reading from the second reader were grouped in standard II, and so on. Students who progressed beyond the elementary school readers could read from the high school reader and were grouped in a high school standard. Standard VI was the first high school standard added to the elementary school program. For a brief period beginning in 1890 standard V was included with the high school standards. By the end of the territorial period the high school program consisted of three standards (VI, VII, and VIII) superimposed on the elementary school program.

²Ibid., 1889-90, p. 33.

³Ibid., 1889-90, pp. 46, 84.

⁴Ibid., 1890-91, pp. 13, 33, 38.

The early high schools of the North-West Territories were continuous with the elementary schools, not only with regard to program of study, but also with regard to administration. The same district school board administered all the departments in the school from primary to high school. The school board appointed a staff of teachers, one of whom was made the principal teacher of the whole school. The pattern established from the beginning was for the teacher in the high school department to serve as principal of all departments from primary to high school. The school was periodically visited by a government school inspector who inspected all the rooms of the school. Almost invariably the early high school had no building of its own, but was merely a room in a graded school building designated as the high school room.

The organization of the public high school at Calgary is a good example of the early pattern of continuity in the administration of the elementary school and the high school. For the school quarter ending March 31, 1889, the Calgary Public School Board engaged the services of four teachers to offer instruction in all the standards from primary to high-school level. Misses Wheelan, Cowan, and McIntyre taught the elementary school standards. Mr. Short taught the high school branch and served as headmaster or principal of the whole school. All four teachers and their pupils were housed in a four-room school building which had been constructed two years previously. All rooms from primary to high school level were visited by the same inspector. The organization adopted in Calgary became the pattern for years to come in villages and towns where school programs were extended upward to include high school.

Legal Sanction for Public Support

Beginning in 1886 the Board of Education in the North-West Territories made several appeals to the Territorial and Dominion Governments to provide financial support for public high schools. The Dominion Government gave little encouragement, taking the stand that private secondary schools were already established in the Territories, and that the benefits accruing from such schools should be "fully ascertained before the question of granting assistance to public high schools be considered."⁵

The lack of encouragement from the Federal Government did not deter the leaders in the North-West Territories from carrying out their plans to establish public high schools. The Board of Education renewed its appeal to the Territorial Government to add to the School Ordinance a clause which would encourage public school districts to establish high school branches in their schools.

⁵N.W.T., Journals, 1887, Appendix G.

Finally in 1888 the North-West Assembly inserted in the School Ordinance the sections which gave a firm legal basis for the public support of high schools:

177. To schools in which the daily average attendance is not less than sixty pupils, when not less than three teachers are employed, and when not less than fifteen pupils, in regular attendance at any one such school, have passed the examination prescribed by the Board of Education for entrance to the High School Branch of such schools, a grant of \$350 in addition to the grants to which the school is otherwise entitled, may be made annually to such school for high school teachers, provided the certificates held by such teachers are approved by the Board of Education; provided always that in any two adjacent school districts jointly fulfilling the requirements, a "Union School" may be established in either district, at the discretion, and under the management of the trustees of both districts.

178. The Board of Education shall prescribe a course of studies for use in the High School Branch of such schools and it shall be obligatory on the part of the Trustees of such schools to provide suitable accommodation and all necessary school apparatus for the use of the pupils.

179. The Board of Education may, under regulations prescribed by them, authorize the establishment of a Normal Department in any such schools, and the Trustees of any such school shall thereupon establish such Normal Department.

180. Such schools shall be known as Union Schools.⁶

Pursuant to the instructions contained in the above sections of the School Ordinance, the Board of Education at its meeting in March 1889 adopted provisional regulations relating to the entrance examinations, the course of studies, and other matters affecting high school branches of union schools. The *Annual Report* of the Board of Education for the following year contained a complete set of regulations relating to the operation of union schools.

The revised and consolidated School Ordinance of 1892 set forth in considerable detail the conditions to be fulfilled by union schools. These conditions were practically the same as those contained in the original legislation prepared four years previously, with the exception of one new condition: "where Union Schools are established, the High School Department of such schools shall be non-sectarian." The insertion of this proviso reflected the trend towards secularism associated with the transition from dual control by the sections of the Board of Education to unified control by the Council of Public Instruction. This early attempt to make separatism illegal at the high school level was not successful. The proviso was repealed in the following year. Separatism continued to be an established legal principle at the high school as well as the elementary school level.

All clauses relating to union high schools were deleted in the revised and consolidated School Ordinance of 1896.⁷ Two main

⁶N.W.T., Ordinances: 1888, ch. 59.

⁷*Ibid.*, 1896, ch. 2.

developments were probably responsible for this early termination of the legal history of union high schools in the North-West Territories. In the first place the withdrawal of the union school grant made all the detailed legislation regarding such schools pointless. In the second place the union high schools were failing with respect to their *raison d'être*, the professional training of teachers. The establishment of a permanent normal school in Regina and the holding of short normal sessions at intervals in other centers meant that the Council of Public Instruction was giving up attempts to carry out professional training programs for teachers in close association with high school branches of union schools.

Although the revised School Ordinance of 1896 contained no reference to union high schools, it contained several sections which seemed to give legal sanction to the expansion upwards of the public school system to include instruction at the secondary level. Section 6c stated that it was the duty of the Council of Public Instruction "to define by standards the studies to be pursued in all schools, such Standards to be numbered from I upwards, standards above Standard V to be further denominated High School Standards." Section 113e provided a special grant of seventy-five dollars per term for any high school complying with the provision of the Ordinance and the regulations of the Council of Public Instruction. Other sections in the Ordinance relating to programs of study and tuition fees sanctioned instruction in public schools at the high school level.

The provision of a legal basis for the public support of high schools in the North-West Territories followed the pattern in older settlements on the continent. In certain provinces of Canada, and in various states of the United States, legislatures at first passed laws which provided a legal basis for the public support of a system of common schools. Since it seemed to be the wish of the people that these common schools extend their grades upward to include the high school grades, the legislatures and the courts tended to give a broad interpretation to the term "common school," and to consider that the high school was a part of the common school system. Important legislative enactments such as the Ontario School Act of 1870-71, and well-known court cases such as that at Kalamazoo, Michigan, in 1874, helped to dispel doubts regarding the legality of using public funds for support of high schools. The School Ordinances passed by the North-West Assembly in 1888 and 1896 helped to establish the legality of public support of high schools in the Territories. During the nineteenth century in the New World the pattern of educational development was towards an ideal of a

free and universal system of public schools extending from elementary to secondary level.

Financial Support by the Territorial Government and the Towns

The Government at Regina and the local school districts shared in the financial support of public schools in the North-West Territories. When the public school program was extended upward to include high school subjects, the Government and the local districts shared in the cost of operating high school classrooms.

In that late 1880's the Government at Regina paid about half the cost of operating public school classrooms. The basic classroom grant for all levels of instruction was fixed at 75 per cent of the teacher's salary. In 1892 there was a change in the school grant structure which had the effect of reducing the government share of the financial support of the high schools. In that year the North-West Assembly experienced difficulty in administering the school grants because the Federal Government appropriations were not large enough to pay grants according to the usual formula. The Assembly therefore adopted a new policy of providing a flat grant for all classrooms, thereby reducing the basic classroom grant for high school rooms. In 1901 there was another change in the school grant structure which had the effect of lowering still further the government contribution to the support of high schools. The basic classroom grants for rural districts were increased and those for village and town districts decreased. Since the high school rooms were in the village and town districts, this meant that the Government at Regina paid a decreased share of the cost of the high schools, and the villages and towns an increased share.

A noteworthy feature of territorial school finance was the variety of special grants devised by the Government at Regina to stimulate local districts to offer advanced instruction. A union high school qualified for \$350 per year in addition to all the other grants to which the school was entitled. Only the larger public schools at Calgary, Regina, Moose Jaw, Moosomin, and Prince Albert had high school branches large enough to meet the requirements of this grant. Smaller centers, like Lethbridge, Medicine Hat, and Edmonton, which had low enrollments in the upper standards, received no special aid at all. In an effort to make the stimulation grant available to centers of all sizes, the North-West Assembly withdrew the union school grant and provided a special capitation grant of eighteen dollars per year for every pupil enrolled in a standard above III. In 1896 this capitation grant was withdrawn in favor of a new form of stimulation grant. The Government made available a subsidy of \$150 per year for each high school, defined for grant

purposes as the department of a public school having at least two high school teachers and an average daily attendance of at least forty pupils in high school standards.⁸

External examinations were associated with each of the above forms of stimulation grant. Evidently there was concern lest local school authorities promote pupils more rapidly than was justified. An external examination decided admission of pupils to the high school branches of union schools. When the special capitation grant was in force, the Government tried to administer a cumbersome system of external examinations for all standards from III upwards. Finally the external standard V examination was retained to decide admission of pupils to high school.

The per pupil cost in senior rooms in territorial schools was relatively high. The enrollments in these rooms were usually small, and the salaries of the high school teachers were much higher than those of teachers in junior rooms. Tables I and II, which represent typical arrangements, reveal that the per pupil cost of operating high school departments was much greater than the per pupil cost of operating elementary school departments.

TABLE I
CLASSROOM ENROLLMENTS AND TEACHER
SALARIES, CALGARY, 1891*

Standards in the classroom	Room enrollment	Annual salary of teacher
High school	35	1200
IV	54	800
III	52	600
II	67	600
I Senior	57	600
I Junior	34	600

*Data for Calgary Public S.D. No. 19, from *Annual Report*, Board of Education, N.W.T., 1890-91, pp. 20-23.

The Territorial School Ordinance permitted school boards to charge fees for high school students. If a school board maintained a high school as defined by the Ordinance, the board might levy high school fees not exceeding fifteen dollars per year per pupil. The law permitted school boards to charge these fees in those cases in which the parents or guardians were resident ratepayers of the

⁸N.W.T., *Ordinances*: 1888, ch. 59; 1892, ch. 22; 1896, ch. 2.

school district. It appears that few school boards did actually charge fees for high school pupils whose parents or guardians resided in the district, despite the legal permission to do so. Most people in the North-West believed that secondary education should be free in the fullest possible sense of the word.

TABLE II
CLASSROOM ENROLLMENTS AND TEACHER
SALARIES, EDMONTON, 1898*

Designation of room	Room enrollment	Annual Salary of teacher
High School	16	1200
Intermediate	50	800
Junior	41	600
Junior	47	600
Junior	65	600

*Data from unpublished minutes, Edmonton Public S.D. No. 7, February 2, 1898.

Although the general sentiment of the people of the Territories was in favor of public support of secondary education, there was one community at least in which the matter became a controversial issue. The policy of using public funds to furnish instruction at the high school level was strongly criticised in 1897 by certain members of the Medicine Hat School Board. Three years later the issue of public support of the high school again came to the fore in a meeting of the Medicine Hat School Board, and this time the opposition was sufficiently strong to carry a motion that no further classes be undertaken higher than that equivalent to "Public School Leaving". A few months later the Medicine Hat School Board rescinded this motion. Although the Medicine Hat School Board had finally accepted the principle that public funds should be used to support a high school, it had not yet accepted the principle that the high school instruction should be free to the students. In 1902, after the high school department in Medicine Hat had grown large enough to permit the charging of tuition fees as provided in the School Ordinance, the Board decided to charge all high school pupils a fee of seven dollars for the first term and five dollars for the second term.⁹

⁹Medicine Hat Public S.D. No. 76, unpublished minutes, 1897-1903, *passim*.

Territorial high schools derived their financial support from the two main sources of government subsidy and local taxation. As the Government contributed a decreasing share of the cost of operating these schools, the townspeople had to assume an increasing share of the burden. Because per pupil costs were high, and because towns had to assume an increasing share of the burden, some individuals challenged the principle of public support of secondary education. However, the overwhelming sentiment of the townspeople was in favor of full public support of secondary education. Practically all towns and villages pressed forward with organization of high school departments which would provide free instruction for youth.

Summary

Political and social factors in the North-West Territories favored establishment of the public high school as the dominant type of secondary institution. In the School Ordinance of 1888 the North-West Assembly provided legal sanction for public control and support of secondary education. In the following year fully organized high school departments were opened in Calgary. The first high schools in Calgary and other territorial towns developed as an extension upward of the public school system. The Territorial Government and the towns shared in the cost of maintaining public high schools, with the towns paying an increasing proportion of the cost.

Important precedents regarding the organization of public secondary education were established during the territorial period. The territorial high school system provided the framework for the high school expansion which was to take place in the new province of Alberta in the decades to come.

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THE RURAL HIGH SCHOOL IN ALBERTA

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Acme, Alberta

On April 19, 1921, the Legislature assented to the Secondary Consolidated School Act. This Act stated that:

Two or more adjoining school districts of any kind may consolidate—by the formation of a new district for the purpose of establishing and maintaining therein a school or schools for the education of pupils who have completed grade VII or grade VIII of the Public School Course as classified by the regulation of the Department of Education, and a district so formed shall be known as a secondary consolidated school district.¹

Subsequently the Secondary Consolidated School became commonly known as the Rural High School.

Sources of Information

Although the Rural High School began and ended within comparatively recent times, some of the story has already been lost. Much of the information for the present study had to come from the rural areas that had been served by such schools: from divisional secretaries, superintendents, teachers, students and others.² Further information was given by eight former secretary-treasurers as well as many trustees, teachers, and pupils of the Rural High Schools. Among the valuable documents located were seven minute books, a number of registers and cash books, two detailed sets of files,³ and several government pamphlets and reports. In all, thirty questionnaires were answered and four interviews granted.

Historical Background

After World War I the population trend was to the city. But whether rural youth stayed on the farm or found a new place for itself in urban society, the necessity for a high school education became apparent.

Previous to 1921 a complete high school education was available only in cities and larger towns. Villages and rural schools frequently offered some training beyond grade VIII, but conditions were seldom satisfactory. Consolidated schools, which included all grades, had been in existence since 1913.⁴ They usually provided some high school, but the regulation stated that pupils must be provided with

¹Statutes of Alberta, 1921. p. 233.

²Grateful acknowledgement is here made of the encouragement and assistance of Mr. Harry Sweet, and of the librarians in the Department of Education and the Legislative libraries.

³Rockyford R.H.S. No. 3, and Kathryn R.H.S. No. 7.

⁴I. Goresky, *The Beginning and Growth of the Alberta School System*, p. 112.

transportation forced a sharp increase in taxes. In Central and Northern Alberta roads and weather were further deterrents to consolidation, and thus in the more populated areas the two-room rural school proved to be most popular. Wherever high school was taught the Government gave special grants, and in 1919, as a further encouragement to students, the Government increased grants and abolished the right of school districts to charge fees to high school students from outside districts.⁵

However, in spite of government measures in education, young people in rural areas were still decidedly handicapped. The Deputy Minister of Education, John Ross, reported to the Minister that more and more farmers were agitating for a rural high school in order that their children might secure secondary education within reach of their homes. Thus in 1921 the experiment began.

Legislation

The idea of the Rural High School seems to have arisen from the efforts of Alberta educators to keep the advantages of a consolidated school while avoiding the criticisms of consolidation. At the end of 1921 J. T. Ross summarized the organization as follows:

The Secondary Consolidated School Act, which was passed by the Legislature, gives authority to two or more districts to unite for the purpose of organizing a rural high school. The consolidated district is administered by a board of trustees that is selected by the board of trustees of each unit appointing one of its members to act as its representative on the school board of the consolidated district. The money required to operate the school is raised by a tax levied on all the taxable property in each district, each district contributing in proportion to the assessed value of its property, and a grant of \$4.00 per day from the Government. The grades taught in the school must be those above the seventh, and should include the eleventh.⁶

The legislation reduced the cost of consolidation by not providing transportation for school students, who were thought to be old enough to provide their own means of transportation. Furthermore, rural folk would no longer have to bear the expense of sending their children away to school, and more important, the children could have the satisfaction of living at home. The need for dormitories and boarding places for more distant students was of course foreseen.

The Rural High School in Operation

Location

Strangely enough, in practice the Rural High School was seldom rural. Of the nineteen school districts organized under the Act, only two schools were built without a village or hamlet as a centre.⁷

⁵In 1922 the Legislature voted to permit a monthly fee of three dollars for non-resident pupils enrolled in grades above VIII.

⁶Annual Report of the Department of Education, Alberta, 1921, pp. 12-13.

⁷Angle Lake R.H.S. No. 6 and Splan R.H.S. No. 12.

Ironically, the only school district to be dissolved before the coming of the school division was Angle Lake, one of the two truly rural schools.

Forming Districts

As the map (Figure 1) shows, response to the Rural High School Act was not extensive. Inspectors' reports for the next few years indicate that many rural areas were interested in a Rural High School, but objections arose mainly from the fear of increased taxation especially by taxpayers who had no children. The high school inspectors' report of 1922 stated:

In some centres the provision of free education beyond grade VIII is being seriously questioned, and the claim is made that the State and the ratepayer in general have done their duty when they have provided free educational facilities to the end of the so-called Public School Course.⁸

A further blow to the Rural High School movement was the legislation granting fifty cents per day for one-room rural schools teaching beyond grade VIII. In spite of protests from inspectors that teachers would be unable to handle the increased burden satisfactorily, the teaching of high school in rural schools increased sharply. Thus where Rural High Schools were organized there was either a strong community spirit favoring education, or forceful personalities guiding events.

Villages and hamlets were best suited to take advantage of the Rural High School Act. Often the high school population did not warrant a separate room nor were local finances thought sufficient to build an extra room. Thus when surrounding rural districts were willing to share in the costs and advantages of higher education, the Rural High School was established. Sometimes Department of Education officials discouraged poorly organized districts, but on the other hand they campaigned actively in promising high school areas.

Formation of Districts

To form a Rural High School District the Inspector of Schools and the trustees from the school districts involved had to submit a detailed plan of their proposal to the Minister of Education. The Department would then send a representative to investigate the matter further and to give assistance and advice. If conditions proved satisfactory, 25 per cent of the resident ratepayers of each district had to sign a petition asking for high-school consolidation. A vote was then taken over the petitioning districts as a whole, except for village or town districts. A majority vote was required. If the rural districts voted in favor of a Rural High School, a town or village board to be included merely passed a resolution approving

⁸Reports of the Department of Education, Alberta, 1922.

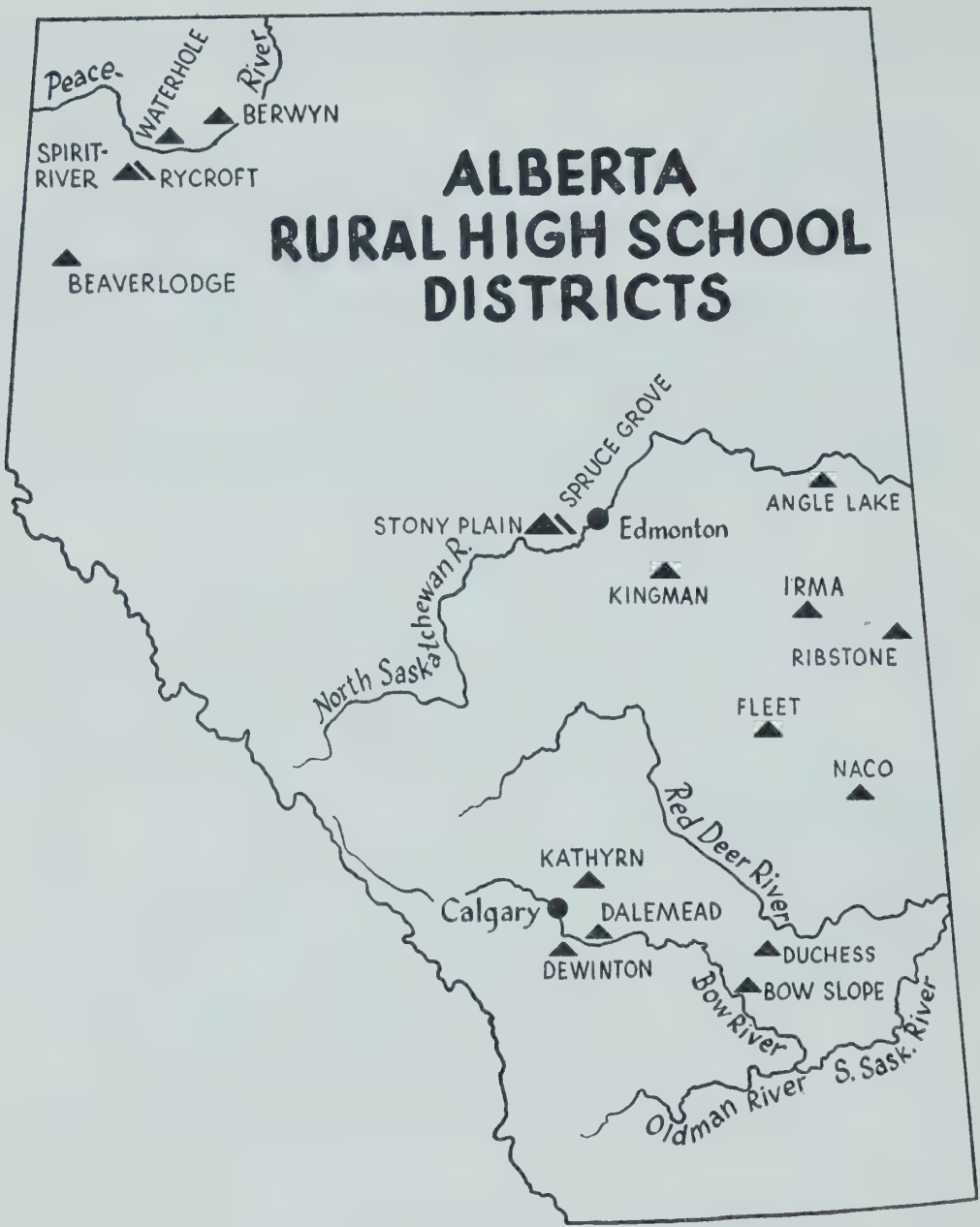


FIGURE I

▲ HIGH SCHOOL DISTRICTS

- | | |
|------------------------|---------------------------|
| 1. Irma, 1921-40 | 11. Bow Slope, 1929-39 |
| 2. Fleet, 1921-39 | 12. Splan, 1929-39 |
| 3. Rockyford, 1926-45 | 13. Spirit River, 1929-45 |
| 4. Dalemead, 1926-39 | 14. Beaverlodge, 1930-47 |
| 5. Naco, 1926-45 | 15. Dewinton, 1930-39 |
| 6. Angle Lake, 1927-33 | 16. Duchess, 1930-44 |
| 7. Kathyrn, 1927-39 | 17. Spruce Grove, 1933-39 |
| 8. Kingman, 1927-38 | 18. Ribstone, 1935-39 |
| 9. Waterhole, 1927-44 | 19. Rycroft, 1938-40 |
| 10. Berwyn, 1928-44 | |

or disapproving consolidation, and gave public notice thereof. A petition by any twenty-five resident ratepayers of a town or fifteen resident ratepayers of a village could force a vote to be taken. In such cases a majority vote was needed in the village or town for approval of the school board's action.⁹

In practice, the number of school districts taking part in the Rural High School varied from nine at Waterhole¹⁰ to two at Angle Lake. The average was four or five. The farthest average distance a pupil travelled to school was approximately seven or eight miles, although Beaverlodge reported a maximum of sixteen miles.¹¹

Sometimes the presence of Separate Schools within the area complicated matters, although the different districts might work together.¹² Occasionally a school district became disgruntled and attempted to secede from the union.¹³ Since the loss of taxable land might seriously endanger the whole organization, government officials usually helped to keep it intact.

Accommodation

The Department of Education had different sets of plans for the building of Rural High Schools, but the use of other buildings was permitted so that taxes would not be too high at first. The first classes often began in such structures as a Methodist Church building at Irma, community halls at Angle Lake and Waterhole, a former house at Bow Slope, and a C.P.R. bunkhouse at Kathryn. Usually these accommodations were merely temporary, although one inspector's report suggested the need to force some schools out of temporary quarters. Usually, however, the Rural High School rented a room in the Public School building or else built a new school.

The unsuccessful venture at Angle Lake was a direct result of lack of accommodation. Their new community hall, made of local lumber by a cooperative community, proved too cold for habitation, and school was discontinued at Christmas. Thus Angle Lake operated from September to December in 1927, although records show that the Rural High School District was not dissolved until 1933.

Enrolment

Most Rural High Schools had an attendance of more than fifteen pupils with an average enrolment of approximately twenty-five.

⁹Statutes of Alberta, 1921, pp. 233-237.

¹⁰Fairview.

¹¹Rural High Schools in Alberta, p. 19.

¹²Rockyford R.H.S. No. 3 was limited in area by both a Catholic Separate School and a Hutterite School.

¹³For example, Landseer in Rockyford R.H.S. No. 3 and Dalroy in Kathryn R.H.S. No. 7.

Some schools included grades as low as VIII while other included XII. Inspectors felt that grade XII in most cases was too great a load for a one-room high school, and some boards felt that where grade XII was taught the students of that grade should pay special tuition fees. When the high school became a two-room school such as at Waterhole, Berwyn, and Beaverlodge, grade XII pupils were readily accepted.

Finance

The Government grant to the Rural High School was four dollars per day for each day the school was open, provided that an average attendance of fifteen pupils was maintained. School files indicate that in practice this grant was seldom if ever withheld because of insufficient students. In addition there were special grants for such things as science equipment and libraries. In 1933, as a result of the depression, grants were paid for 180 days instead of the usual 200 days, and in 1936 the figure of 200 days was restored but the grant per day was reduced to three dollars and sixty cents.¹⁴

Local school taxation was based on the assessed valuation of property, although some areas began with taxes on an acreage basis. The Rural High School board budgeted for the year and then requisitioned each school district according to its assessment.¹⁵ In most districts the tax levy was seldom more than two mills, although in lower assessment areas such as Naco and Bow Slope the tax went as high as four mills. Of course, the more districts included in the Rural High School the lower the tax rate was likely to be. However, in the case of Naco R.H.S. No. 5, districts outside a ten mile radius were given special consideration. There was agitation in some districts that the taxes to be paid by each district should be relative to the number of students attending school, but the idea was never implemented.

The Minister of Education estimated in 1930 that the average annual cost of maintaining a Rural High School in that year was \$2,400, and that of this amount the Government paid one-third—or \$800 per year in grants.¹⁶ Generally the average cost per pupil for education in the Rural High School was less than the average cost per pupil in city and consolidated schools.¹⁷

Collecting taxes sometimes proved difficult. In 1928 Kathryn R.H.S. took action against a local school district for not paying its requisition, but the matter was settled out of court. However,

¹⁴The Schools Grants Act, 1933 and 1936.

¹⁵In 1931 the municipality was made a collection agency. (See *Taxes and Collection Act*, 1931.)

¹⁶*Rural High Schools in Alberta*, p. 12.

¹⁷See the Comparative Cost Tables in *Annual Reports of the Department of Education*, 1921-1945.

when Rockyford R.H.S. wished to take action against a delinquent municipality, the school board found that the School Assessment Act of 1931 gave them no power to do so. Taxes were collected by the municipality and turned over to the local school district which in turn paid the Rural High School District. With the consent of the Minister the local school district could take legal action against the municipality, but the Rural High School could sue neither. Mr. C. R. Walrod, secretary-treasurer of the Rockyford R.H.S., stated in a letter to the Minister of Education, "we doubt the legal status of any contract a Rural High S.D. should sign when they have absolutely no collectable claims to their own requisition". After much correspondence, the Minister stated that owing to the prevailing disturbed conditions nothing should be done.

Tuition Fees

Originally the Rural High School was not permitted to charge tuition fees, but in 1922 a fee of three dollars per month for non-resident pupils was permitted. Sometimes students would come to a Rural High from distant as well as adjacent points. Record books indicate that attempting to collect fees was perhaps the most annoying feature of administration.

Facilities

Fleet Rural High School began with homemade desks, the pupils providing their own chairs. Many other schools had as humble a beginning. Nevertheless, as time progressed reports show that facilities in rural high schools were generally satisfactory.

Teachers

Seldom were there complaints about the qualifications of teachers in Rural High Schools. High School teachers were usually plentiful during the period of the Rural High. As usual, the suitability of some teachers was questioned.

Living Accommodations for Students

One of the defects of the Rural High School was a lack of living accommodations for pupils. Except at Duchess no dormitory was provided by the school board. Some areas such as Rycroft were fortunate in having religious organizations¹⁸ that provided room and board for students. Boarding at local homes was the most common. At Naco parents often moved to town in bunk-cars for the winter.

Reasons for Discontinuation

Only one Rural High School, Angle Lake, discontinued operations for reasons other than the coming of the school division. Proponents

¹⁸For example, the Sisters of Service.

of the Rural High often voiced strong opposition to the division. When in 1929 Perren Baker suggested the idea of divisions with a provincial wide system of taxation, the Rockyford taxpayers stated in a brief submitted to the Provincial Legislative Assembly:

If a settler choose to file on a mountain top or on an island in the centre of a lake are the taxpayers expected to educate his children—? Will the Hon. Mr. Baker or someone else tell us where (he) can possibly see justification in penalizing one section of the province and subsidizing another section. It is but the Irish Home Rule Bill in another guise being fostered upon the people of Alberta to the detriment of the few unjustly assessed municipalities.¹⁹

The Rockyford brief went on to say it would be a profitable investment for the Government to move poorly located settlers to a more reasonable location. But in 1935 Fairview taxpayers objected to the idea of a division on the ground that they would be forced to pay for the education of homesteaders' children who had been moved there by the Federal and Provincial Governments.²⁰

In 1935 the Social Credit Party swept into power under Mr. Aberhart, who as Minister of Education put into effect the dream of his predecessor Perren Baker. Following the report of a Legislative Committee on rural education, the Legislature empowered the Minister of Education to set up divisions without a vote of the rate-payers. In 1936 eleven divisions were formed.

The Rural High School districts were caught in the new wave, and although they struggled they were eventually overwhelmed. Only towns and villages had a choice. They could join the division, operate the school and let divisional students pay fees, or let the division operate the school and let the town and village students pay fees. However, the only permanent solution was for the towns and villages to join the division. Those that joined had an opportunity to become centralized schools, but those that stayed out generally stagnated.

For a number of reasons (convictions, sentiments, or both) many officials of the Rural High School never accepted the idea of the superiority of the divisional system.

Evaluation of Experiment

The Rural High School experiment cannot be branded a failure. Graduates of these schools today include research chemists, lawyers, doctors, superintendents of schools, and teachers, as well as hundreds of others whose lives were enriched by a high school education which they otherwise would not have had. The experiment developed community leaders who were strong and capable—as they had to

¹⁹Rockyford R.H.S. files dated February 2, 1929.

²⁰Minute book, Waterhole R.H.S. No. 9 (January 21, 1938).

be if the project was to succeed. Furthermore, it might be argued that the Rural High School promoted greater community interest in local educational affairs than does the present division. A former secretary expressed this feeling when he said of the Rural High School:

All the school's problems were definitely the problem of a local people, not a job to be passed up by some one a million miles away as far as his knowledge or responsibility to local conditions is concerned.²¹

Still, the Rural High School did not take root and spread quickly enough. Meanwhile the need of a coordinated attack upon education covering large areas was obvious. Progress had brought better roads and better transportation. Centralization of schools was now more feasible. The dormitory or boarding place could be replaced by the school bus. The municipality in the rural areas was already the taxing agency, and for the sake of administration and efficiency the larger unit seemed the remedy. Perren Baker had made consistent attempts at centralization but failed. In 1935, with the election of the new government, educational leaders took a stronger hand. The era of the Rural High School was over.

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²¹Letters from G. R. Davel, Fleet R.H.S.

AN EVALUATION OF ARITHMETICAL COMPETENCE IN THE JUNIOR HIGH SCHOOLS OF LETHBRIDGE

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The Problem

The needs of children in the complex society of today necessitate a constant evaluation of all aspects of the educational program. Arithmetic is an integral part of our curriculum. One purpose of this study is to measure the levels of achievement in arithmetic of grades VII, VIII, and IX of the junior high schools of Lethbridge. Another purpose is to evaluate the adequacy of the arithmetic program, and to determine areas of strength and weakness in each of the grades under study. Further, the investigation is bound to yield information concerning the efficiency of the testing instruments.

Experimental Design

In planning a sound experimental study due consideration must be given to problems of sampling, testing instruments, experimental procedures, analysis of data, and the interpretation of findings.

Various techniques have been devised for obtaining a sample which will be representative of its population. H. E. Garrett¹ states that the most trustworthy way of securing representativeness is to make sure that the sample is random. The next requirement is sample size. The larger the sample the more truly it mirrors the characteristics of the population or supply. In this study both of these considerations have been kept in mind in the effort to insure that a reliable and representative sample was chosen. The total population of the junior high schools of Lethbridge was: grade VII—350, grade VIII—340, grade IX—280. As these groups were too large to work with, a random sample of approximately 150 was chosen from each grade. When the pupils had been numbered the sample was selected from the total population according to Fisher's² table of random numbers. Since it would have caused considerable inconvenience to the teachers of the Lethbridge junior high schools if the tests had been administered to selected students only, arrangements were made to test all the pupils in each class. This procedure permitted the tests to be given in a normal classroom atmosphere. The tests were scored according to the keys supplied by the test makers.

¹H. E. Garrett, *Statistics in Psychology and Education*, p. 202.

²R. A. Fisher and F. Yates, *Statistical Tables*.

Two testing instruments were used to measure the arithmetical competence of the students of the junior high school. In this way it was hoped that a more thorough investigation could be carried out. The Hundred Problem Arithmetic Test (Form V) and the California Arithmetic Test (Intermediate Form AA) were used. Frequency tables were compiled from the resulting scores for each of the five subsections and the total for the Hundred Problem Test, and for each of the eight subsections and total score for the California Arithmetic Test. The mean and standard deviation for all total scores, and scores for sections and subsections of both tests were then computed.³ The significance of difference between the means of grade VII and grade VIII, of grade VII and grade IX, and of grade VIII and grade IX for each score was then computed in the following manner. The standard error of the mean was calculated using formula $\sigma_M = \frac{\sigma}{\sqrt{N}}$. The standard error of the difference between the two means was calculated using formula $\sigma_D = \sqrt{\sigma_{M_1}^2 + \sigma_{M_2}^2}$. The critical ratio was obtained by dividing the difference of the two means by the standard error of the difference:

$C \cdot R = \frac{D}{\sigma_D}$. The critical ratio was then tested against the t table.

The null hypothesis was rejected at the .05 and .01 levels of confidence.⁴ A comparison of the achievement of grade VII, grade VIII, and grade IX with the test norms was then completed.

The Testing Instruments

The Hundred Problem Arithmetic Test has two forms, Form V and Form W. The one hundred items of each test are arranged in five sections; addition—ten items, subtraction—ten items, multiplication—fifteen items, division—fifteen items; and fractions, decimals, and per cent—fifty items. This test is recommended for use in grades VII to XII inclusive. It is easy to administer, requiring a total of forty minutes. The authors claim that it not only measures numerical facility, but is so constructed that it minimizes extraneous factors such as verbal ability, and gives a practical measure of the computational skills. The correlation between scores on the Hundred Problem Test Form V and the Terman-McNemar Test of Mental Ability Form C was .43 for 278 pupils in grade X, while the correlation of the Hundred Problem Arithmetic Test and the Foust-Schorling Test of Functional Thinking in Mathematics was .53 for grade X pupils in the national standardization population. Reliability coefficients of .94 and .95 were established by the Kuder-

³Garrett, *op. cit.*, pp. 38-53.

⁴Garrett, *op. cit.*, pp. 187-189.

Richardson formula,⁵ which indicate that a high degree of consistency may be expected in measuring arithmetical skills.

The Intermediate California Arithmetic Test is suitable for grades VII, VIII, and IX. Because of the wide range of ability found in most grades, this test provides for measurement several grades above and below the particular grade being tested. The California Arithmetic Test is one of a group of three tests which comprise the Intermediate Battery of the California Achievement Test series. The Arithmetic Test may be used alone, or in conjunction with the corresponding forms of the Reading and Language Test when a more comprehensive coverage of basic skills is desired. All levels and forms of the California Test series possess a high degree of validity. The coefficients of reliability are given for the two main parts of the test and for the total. The reliability for Arithmetic Reasoning is .92 with a standard error of measurement of .41. For Arithmetic Fundamentals the reliability coefficient is .95 with a standard error of measurement .33. The reliability for the total test is .95 with a standard error of .32. These coefficients were determined by averaging the intercorrelations of the different forms of the test for a single grade range.

The total working time of seventy-four minutes may be broken conveniently into two sessions. The Examiner's Manual⁶ gives clear and adequate directions for the administration of the test. The test may be hand or machine scored. Reviewers of the test stated that it is a good instrument for surveying performance in fundamental operation but discount the diagnostic features of the test. For example:

The California Arithmetic Test, with four carefully equated forms at each of three levels, provides a good instrument for surveying performance in fundamental operations, problem solving, and certain aspects of information. The tests are easily administered and scored, and the comparison of individual scores with norms can be done in a minimum of time. The diagnostic features of the test are not so valuable as they seem, but they have some value for teachers aware of diagnostic limitations of tests that survey widely.⁷

Related Studies

A search of educational literature reveals many shortcomings of the arithmetic program. Clemens and Neubrauer⁸ studied difficulties in multiplication encountered by 2,000 children in grades IV to VIII, finding that all possible types of errors were made.

⁵C. F. Kuder and M. W. Richardson, "The Theory of the Estimation of Test Reliability," *Psychometrika* 2:3 (September, 1937), pp. 151-160.

⁶E. W. Tiegs and W. W. Clarke, *Manual California Arithmetic Test*.

⁷O. K. Buros, (ed.), *The Fourth Mental Measurements Yearbook*, p. 411.

⁸R. B. Clemens and P. E. Neubrauer, "A Supervision Project in Multiplication," *Journal Educational Research* 18, pp. 387-96.

In 1943 Arthur⁹ prepared a test to see which requirements advanced by the committee on Essential Mathematics for Minimum Army Needs required further attention in high school. He found that freshmen entering high school three or four years after the publication of the report did not have adequate understanding of or the ability to work many of the problems considered essential. Much specificity in learning was revealed by the test. Important difficulties with decimals and per cent were found. Arthur concluded that remedial teaching at the high school level is necessary to meet the essential needs listed by the committee. Sueltz and Benedick¹⁰ called attention to the fact that the capacity to use arithmetic functionally means more than ability to compute. They constructed tests to measure understandings and judgments as well as computation and problem solving. The results from 2,000 grade VI students in three eastern states revealed glaring weaknesses in all areas measured: understandings, judgments, computation, and problem solving. The tests were repeated in grade IX and in the senior high school with approximately the same conclusions. The authors found that competence in functional arithmetic falls once the grade VI level has been passed. Furthermore, the program of mathematics at the junior and senior high school level was not adequate to overcome the shortcomings and deficiencies revealed by the tests in grade VI.

R. O. Pritchard,¹¹ in his province-wide survey of arithmetical achievement in grade V, found that while the Alberta medians did not differ from the Iowa medians, the medians of the Alberta rural ungraded school sample were significantly inferior to those of the Iowa standardization sample in all sections of the test. C. E. Climenhaga,¹² in his survey of arithmetical achievement of grade VIII pupils in Alberta, found that the town and urban children compared favorably in most areas tested with the standardization group of the Iowa Every Pupil Test of Basic Arithmetical Skills, but the poor attainment of the ungraded rural pupils persisted at this level.

These investigations reveal many shortcomings of pupils' achievement. Glaring weaknesses in the four fundamental operations are common in the intermediate, junior high, and senior high schools. Important difficulties with decimals and per cent are found. Pupils are very deficient in ability to perceive and apply such relationships as those involved in direct and inverse proportion. To eliminate

⁹L. A. Arthur, "Diagnosis of Desirabilities in Arithmetic Essentials," *The Mathematics Teacher* 43 (May, 1950), pp. 197-202.

¹⁰B. A. Sueltz and W. Benedick, "The Need for Extending Arithmetic Learnings," *The Mathematics Teacher* 43 (February, 1950), pp. 67-73.

¹¹R. O. Pritchard, *A Survey of the Arithmetical Achievement of Grade Five Pupils in Alberta Schools*.

¹²C. E. Climenhaga, *A Survey of Arithmetical Achievement of Grade Eight Pupils in Alberta Schools*.

those shortcomings remedial teaching is necessary at the high school level. It is also recommended that more attention be given to the study of fractions and ratios.

The Hundred Problem Arithmetic Test Data

1. Achievement in Addition

There were ten items in addition of various types in this section. The mean achievement of the various grades is given in Table I, below.

TABLE I
MEAN SCORES FOR GRADE VII, VIII, AND IX ON PART I,
ADDITION, HUNDRED PROBLEM ARITHMETIC TEST

Sample	Mean	Standard Deviation	Standard Error of Mean
Grade Seven	7.86	2.79	.220
Grade Eight	8.43	1.49	.116
Grade Nine	8.59	1.33	.110

Grade IX obtained the highest mean score, followed by grade VIII, and then grade VII. The reverse order prevailed in the standard deviations. When the differences between the means of three samples were tested for significance against Fisher's table of *t*, highly significant differences were found. The critical ratio of the difference between grade VII and VIII is significant at the .05 level, while the critical ratio between grade VII and IX is highly significant at the .01 level. There is no significant difference in achievement in addition between grades VIII and IX.

2. Achievement in Subtraction

The items in this section of the test are too easy for the better students in all of the grades. The distribution curves are negatively skewed, indicating a piling up of scores at the top. When the differences between the means were compared for significance, results similar to those for addition were found.

3. Achievement in Multiplication

The grade IX group obtained a slightly higher mean score than grade VIII which was followed by grade VII. The greatest variability of scores from the mean is in the grade VII sample, with the least variation existing in grade VIII. The achievement of both grade VIII and IX is superior to that of grade VII. There

is no significant difference between the achievement of grade VIII and grade IX.

4. *Achievement in Division*

There is a significant difference between the achievement of grade VII and grade VIII at the .01 level of confidence. There is a similar difference between the achievement of grade VII and IX. There is no significant difference between the achievement of grade VIII and IX.

5. *Achievement in Fractions, Decimals, and Per cent*

This section of the test is doing a better job of measuring achievement in grade VII and in grade VIII than did the other sections. The distribution curves are near normal for all the grades tested, although no significant difference between the achievement of grade VIII and IX is apparent. The achievement of both grade VIII and IX is superior to that of grade VII.

On the total test significant differences between the achievement of grades VII and VIII is revealed, but there is no significant difference between that of grade VIII and IX. A possible reason for this might be that more attention is given in the grade VIII arithmetic program to problems dealing with fundamental operations and fractions, decimals and per cent that is given in the grade IX program. Furthermore, time may have permitted the grade IX's to lose some of their ability through disuse. Still another explanation might be that the test does not discriminate effectively at this level.

California Arithmetic Test Data

The California Arithmetic Test, Form AA, is divided into two parts: Arithmetic Reasoning and Arithmetic Fundamentals. The Arithmetic Reasoning part is made up of four subsections, while the Arithmetic Fundamentals part is also made up of the same number of subsections.

1. *Numbers Concepts*

This section is composed of fifteen items. The problems deal with recognizing numbers, Roman numerals, and selecting the largest number in a group of numbers. The grade IX achieved the highest mean score, followed by grade VII and then the grade VIII. When the mean differences were tested for significance it was found that there was no difference between the achievement of grade VII, VIII, and IX in this section.

2. *Symbols and Rules*

This section contains fifteen items that test the understanding of the common symbols and rules used in arithmetic. The rank

order of mean scores was as follows: grade IX, grade VIII, and grade VII. The grade VIII group had the highest standard deviation. Highly significant critical ratios were obtained when the mean differences were tested for significance. This leads to the following conclusions: (1) there is a significant difference between the achievement of grade VII and grade VIII; (2) there are similar significant differences between the achievement of grade VII and grade IX and grade VIII and grade IX; (3) grade IX has the greatest mastery of the use of symbols and rules, followed by grade VIII and then grade VII. This indicates that there is growth in the ability of grade VII, grade VIII, and grade IX students in the use of symbols and rules. Theoretically this is as it should be.

3. *Numbers and Equations*

This section contains ten items. The first five problems deal with the operations of addition, subtraction, multiplication, and division of signed numbers. The next five problems deal with the solution of equations. Grade IX had the highest mean score followed by that of grade VIII and grade VII. When tests for the significance of difference between the means were carried out it was found that significant differences existed between grade VII and grade VIII, and grade VIII and grade IX.

4. *Problems*

This section is composed of fifteen common type problems dealing with the finding of area, volume, averages, per cent, interest, profits, and premiums. The rank order of the samples as determined by the means is grade IX, VIII, and VII. This is the same as in sections 2 and 3. This similarity indicates that the ability in symbols and rules, numbers and equations, and problems increases with age and grade. This again is further evidence that the California test is measuring better than did the Hundred Problem test. In the section of the Hundred Problem test that corresponds to this one, the rank order of means was VIII, IX, and VII. The California Test results indicate growth in problem solving ability from grade VII to grade VIII, and from grade VIII to grade IX. Since there is a theoretical basis for the correlation of arithmetical scores with age and progress through school it must be assumed that the California test is doing a better job of measuring than did the Hundred Problem.

5. *Arithmetic Reasoning, Total Part I*

Arithmetic Reasoning forms Part One of the test and consists of 55 problems. These problems have been divided into four subsections: Number Concepts, Symbols and Rules, Numbers and Equations, and problems which have been dealt with above. When

the achievements of the various grades were compared for significance, critical ratios of such size resulted that they were significant at the .01 level. This leads to acceptance of the conclusion that the differences in mean arithmetic reasoning scores are real differences and could rarely occur as a result of accident or sampling. The achievement of the grade IX in Arithmetic Reasoning is significantly superior to that of grade VIII, and the achievement of grade VIII is significantly superior to that of grade VII. Such differences are normally expected with continued good instruction and increase in age.

6. *Arithmetic Fundamentals, Part II*

This section of the test is divided into four subsections: addition, subtraction, multiplication, and division. There were twenty items in each subsection with a total of eighty problems.

7. *Addition*

The section on addition is composed of problems in column addition, adding money, adding fractions, adding mixed numbers, and adding different units of measurements. The rank order of the samples according to mean scores was grade IX, VIII, and VII. All mean differences between the grades are significant.

8. *Subtraction*

This section on subtraction deals with problems of subtracting two, three, and four digit numbers, fractions of like and related denominators, mixed numbers, decimal numbers and time units. The grade IX sample has the highest mean score followed by grade VIII and then grade VII. Significant differences exist between the mean scores of grade VII and VIII, and between grade VIII and IX.

9. *Multiplication*

This section on multiplication tests the essential skills required in multiplication of integers, fractions, and decimals. Grade IX has the highest mean score followed by grade VIII, and grade VII. The mean differences between grade VII, VIII, and IX are highly significant, indicating growth in the ability to handle the mathematical operation of multiplication in each grade, from grade VII to grade VIII, and from grade VIII to grade IX. These results are verified by the Hundred Problem Test for grade VII and grade VIII, but the Hundred Problem Test shows no difference in achievement between grade VIII and IX.

10. *Division*

This section tests fundamental abilities required in division. There are problems dealing with the division of fractions by

mixed numbers, and division employing decimal divisors. The grade IX achievement is significantly superior to that of grade VIII and that of grade VIII is significantly superior to that of grade VII.

11. *Arithmetic Fundamentals, Total Part II*

Grade IX obtained the highest mean score followed by grade VIII and then grade VII. This is similar to the rank order of the means of the various subsections, indicating the steady growth of arithmetical ability in the fundamental processes between the grades.

12. *Total Test*

The examination of the total California Test data leads to the following conclusions. (1) On the total test grade IX achievement is significantly superior to that of grade VIII and grade VII. (2) The achievement of grade VIII is significantly superior to that of grade VII. The findings of the California Test data makes it reasonable to assume that there is continuous growth in arithmetical attainment through the three grade levels of the junior high schools of Lethbridge. The Hundred Problem data is in agreement with this conclusion for grade VII and grade VIII, but not as far as the grade IX is concerned. This again shows the failure of the Hundred Problem Test to detect a significant difference between grade VIII and IX, a difference which is repeatedly confirmed by the California test. (3) In sections of the California Test that deal with symbols and rules, numbers and equations, and problem solving, the achievement of grade IX is significantly superior to that of grade VII or grade VIII. (4) The California Test reveals significant differences between the achievement of grades VII, VIII, and IX. The Hundred Problem Test indicates differences between grade VII and VIII, but fails to demonstrate the existence of differences between grade VIII and IX.

Comparison of Achievement

1. *The Comparison of Lethbridge Achievement with The Hundred Problem Norms*

As no means, standard deviations, or grade scores are given for the Hundred Problem standardization sample it is necessary to use a single measure which represents the distribution of scores for the entire group. The standing of the Lethbridge sample in relation to the performance of the national standardization population may be determined by finding the percentile rank corresponding to the median score for the Alberta group.¹³ The final grade percentile norms are given in the Manual of Directions, Hundred Problem Arithmetic Test.

¹³R. Schorling, J. R. Clark, and M. A. Potter, *Manual of Directions, Hundred Problem Arithmetic Test*, p. 4.

TABLE II
MEDIAN AND PERCENTILE SCORES FOR LETHBRIDGE
AND HUNDRED PROBLEM SAMPLES, HUNDRED
PROBLEM ARITHMETIC TEST

Grade	Lethbridge Median	Percentile Rank	Hundred Problem Median	Deviation*
Seven	69.06	76	53.4	15.66
Eight	78.51	81	61.3	17.21
Nine	79.35	71	68.8	10.55

*The difference between sample median and standardization median.

Table II reveals that grade VIII had a percentile ranking of 81, grade VII 76, and grade IX 71. The table also indicates relatively high deviations of the Alberta samples from the norms. For a class of more than twenty-five a deviation of more than three raw score points from the national standardization median may be considered significant.¹⁴ It is now reasonable to conclude that the achievement of grades VII, VIII, and IX in the Lethbridge junior high schools is significantly better than that of the Hundred Problem standardization sample. The diminishing percentile rank for grade IX as compared with that of grade VIII may be explained, perhaps, in terms of the instructional program in that grade, or of the ineffectiveness of the measuring instrument in bringing out differences in achievement between grade VIII and IX. Since the California Test reveals significant differences the obvious conclusion is that the Hundred Problem Test diminishes in effectiveness at the grade IX level.

2. *Lethbridge Results Compared with California Norms*

The norms of the California Arithmetic Test have been based on a huge sample which constituted a normal distribution of mental ability, typical age-grade relationships, and other characteristics.¹⁵ These characteristics must be assumed for the samples from the Lethbridge schools if the comparison is to have validity. The test makers use grade-placement and percentile norms. Therefore it is necessary to make a comparison of the achievement of the Lethbridge samples on these bases. The norms are given for arithmetic reasoning, arithmetic fundamentals, and for the total test. The achievement of grades VII, VIII and IX appear in Table III.

¹⁴Ibid., p. 4.
¹⁵E. W. Tiegs and W. W. Clark, *Manual for California Arithmetic Test*, 1950, p. 17.

TABLE III

MEAN, GRADE PLACEMENT AND PERCENTILE RANKING
OF GRADE VII, VIII, AND IX IN ARITHMETIC
FUNDAMENTALS AND TOTAL ACHIEVEMENT,
CALIFORNIA ARITHMETIC TEST

Sample	Mean	Possible Score	Grade Placement	Percentile Rank
Grade Seven				
Arithmetic Reasoning	31.66	55	8.6	75
Arithmetic Fundamentals	61.71	80	8.6	75
Total Test	93.48	135	8.6	75
Grade Eight				
Arithmetic Reasoning	38.68	55	9.5	75
Arithmetic Fundamentals	65.84	80	9.2	60
Total Test	104.70	135	9.4	70
Grade Nine				
Arithmetic Reasoning	45.63	55	10.5	75
Arithmetic Fundamentals	68.70	80	9.6	50
Total Test	114.50	135	10.1	60

Table III reveals that grade VII has a grade placement of 8.6 and a percentile rank of 75. As the tests were administered toward the end of January this gives grade VII a placement of 1.1 grades above their actual position. It is interesting to note that the grade placement and percentile rank of grade VII were the same on the two parts, arithmetic reasoning and arithmetic fundamentals, and on the total test. The grade VIII group placed one grade above their level in arithmetic reasoning, .7 of a grade above their own grade in arithmetic fundamentals and .9 of a grade above their own on the total test. Their percentile rank was 75 on arithmetic reasoning, 60 on arithmetic fundamentals and 70 on the total test. Grade IX was 1.0 grades above the California sample in arithmetic reasoning, .1 of a grade above in arithmetic fundamentals and .6 above the norms on the total test. This suggests a relative weakness in the ordinary process involved in arithmetic fundamentals.

In answering the question implied at the beginning of this article, it is reasonable to say that the pupils of the Lethbridge schools in grades VII, VIII, and IX are doing significantly superior work in comparison with the standardization sample of the California test. Although their superiority in fundamental processes is less than in other areas, this superiority is generally confirmed by the comparison of the Lethbridge group with the standardization sample of the Hundred Problem Test.

Areas of Strength and Weakness in Achievement in Arithmetic

The areas of strength and weakness as revealed by the Hundred Problem Arithmetic Test will be considered first. As the test makers have not supplied norms for any of the subsections, there is no reliable standard with which to compare sub-scores in order to determine just how good they are. Therefore it is necessary to rely on a comparison of mean achievement with possible achievement.

TABLE IV
MEAN ACHIEVEMENT OF GRADE VII, VIII, AND IX ON
SUBSECTIONS AND TOTAL, HUNDRED PROBLEM
ARITHMETIC TEST

Parts	Mean Scores Grade Seven	Mean Scores Grade Eight	Mean Scores Grade Nine	Possible Scores
I. Addition	7.9	8.4	8.6	10
II. Subtraction	8.5	9.0	9.0	10
III. Multiplication	11.4	12.5	12.8	15
IV. Division	10.5	12.0	12.5	15
V. Fractions, Decimals and Per Cent	29.5	35.0	34.5	50
VI. Totals	67.6	76.8	77.1	100

In addition, out of a possible score of 10 the grade VII class achieved a mean score of 7.9, the grade VIII group had a mean score of 8.4, and the grade IX a mean score of 8.6. If these scores were converted to percentages they would be 78.56 per cent, 84.27 per cent, and 85.9 per cent. This means that the achievement of half the grade VII class is above 78.56 per cent, half the grade VIII class is above 84.27, and half the grade IX sample is above 85.9 per cent. It is reasonable to conclude that addition is an area of strength. The mean scores for subtraction are high also. Grade VII has a

mean score of 8.5, grade VIII 9.0, and grade IX 9.0. There were 31.25 per cent of the grade VII sample that made perfect scores in this section, while 40.49 per cent of the grade VIII and 44.44 per cent of the grade IX scored 10 out of 10. From this evidence it is reasonable to conclude that subtraction is also an area of strength, and that the test did not measure top students adequately.

The mean scores in multiplication are as follows: grade VII 11.4, grade VIII 12.5, and grade IX 12.5. As these scores are out of a possible 15 multiplication may be regarded as an area of strength. The mean scores for division are very close to those of multiplication, and division may be regarded as a strong area.

TABLE V
MEAN ACHIEVEMENT OF GRADE VII, VIII, AND IX
CALIFORNIA ARITHMETIC TEST

Parts	Grade Seven Mean Scores	Grade Eight Mean Scores	Grade Nine Mean Scores	Possible Score
A. Number Concepts	12.0	11.8	12.2	15
B. Symbols and Rules	7.8	10.3	13.2	15
C. Numbers and Equations	4.4	5.9	8.2	15
D. Problems	7.4	10.6	12.1	15
Total Arithmetic Reasoning	31.6	38.7	45.6	55
E. Addition	15.5	16.3	17.1	20
F. Subtraction	16.1	16.9	17.7	20
G. Multiplication	14.7	16.3	17.1	20
H. Division	15.2	16.7	17.4	20
Total Arithmetic Fundamentals	61.7	65.8	68.7	80
Total Arithmetic	93.5	104.7	114.6	135

On the subsection dealing with decimals, fractions and per cent, the mean scores were lower. It may be assumed that the achievement of all samples in this area is relatively weaker, and that the test performed its task of measuring in an adequate manner. On all parts of the tests the achievements of grade VII, VIII, and IX are similar. When the scores were high for grade VII they were high for grade VIII and IX. When the scores were low for grade VII they were low for grade VIII and IX. The high scores were

obtained in the subsections dealing with addition, subtraction, multiplication and division, while the lowest scores were obtained on the section dealing with decimals, fractions, and per cent.

As the test makers do not give norms for any of the subsections of the California Arithmetic Test it will again be necessary to compare mean achievement with possible achievement.

The grade VII group has a higher mean score for arithmetic fundamentals than it has for arithmetic reasoning. Areas of strength appear in addition, subtraction, division, and in number concepts. This is to be expected as the grade VII pupils have had most of their arithmetical experience in these areas. Weakness appears in multiplication, symbols and rules, numbers and equations, and problems. The grade VIII group shows strength in all the fundamental operations: addition, subtraction, multiplication, division and number concepts. Weaknesses appear in symbols and rules, numbers and equations, and problems. The grade IX obtained high scores in all sections.

Conclusions

1. The Hundred Problem Arithmetic Test results revealed that the achievement of all grades in addition, subtraction, and multiplication was more favorable than it was in division, decimals, fractions and per cent. The test showed no significant difference between the achievement of grades VIII and IX. The achievement of all grades was significantly superior to that of the Hundred Problem standardization samples.

2. The California Test findings revealed growth in arithmetical competence from grade VII to grade VIII, and from grade VIII to grade IX. Although the pupils of the Lethbridge schools in grade VII, VIII, and IX are doing significantly superior work in comparison with the California standardization sample, it is indicated that their superiority in fundamental processes is less than in other areas.

3. The Hundred Problem Arithmetic Test fails to discriminate between the achievement of grades VIII and IX, and in many cases fails to measure the full competence of the excellent students. The California Test is doing a much better job of measuring, and can be recommended for use in our schools.

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